

cttccctacg	gcgacgagcg	aatatgtcgg	tcacggcaat	gtgccaaagc	ctccacggcc	2100
agtcggagtt	cttcctcgtc	tcgatgcttc	ccacatagag	caggtaacgc	tcaggcaagc	2160
atatcgctcc	ctcgtctctg	actcactctc	ctcggtagcc	tgtccaaggc	cggcgaacaa	2220
ccctgataga	cgacatcgat	ccgatcggca	ggcagtggaa	aaactccatc	acatcgcgct	2280
tggtctgctc	gcttatcgct	atccccgtgc	ggcacaacgg	gcagcatggc	cgtatttgag	2340
ccgatacagc	agctgtccac	aggcttataa	tagtgcggtat	agcgaatgaa	gatcaagtcg	2400
tgatcgttac	caccgtggcg	atacccttgc	cgtatatacc	gagtggcaat	cgtggctcag	2460
accgtggaag	agatcgatgc	cctctatatg	cagtcgagga	cc		2502

(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3229 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3229

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

ggataggacg	ggacgatagc	acgaatgtat	tccgtgctcc	gctgcacaac	ttatgccaca	60
tgtngatacc	actaaggcct	ctatcctgct	cgatcaccgc	cgcacaagct	cgacagcggtg	120
gcgatgaccg	gtgtggactt	ggctctgacg	ggcacacgca	caacggacag	atctggccgt	180
ttacgatttt	gacccactgg	cttttgaaaa	atcatggggc	tatcttcgca	aagggcatac	240
gcagtctatg	tcagttcagg	agtaggagcg	gccggaccgg	ctattcgtgt	tttccggaga	300
gtgagatcgt	cattctgaat	gttcggtttg	cctccgaaaa	caaccgggtc	attagccttc	360
cgaaaaacga	acaaatacaa	ttaaccccaa	gaccaccacg	atggcagggt	cttgggggtta	420
gtgttttttt	agcgatctat	acacggagtt	cttgccgcaa	catccttacg	ccttccgtgg	480
caggagcatg	atataccgaa	tgtcttgccg	ggagggtgctg	cgcacaggct	ttggatcgac	540
agatagatgg	ggcagttgcg	aggagcataa	ttcaacagtc	cggcagccga	taaacgttga	600
gagagggtgcc	gatgacaacg	agaatgtctg	cctgtgtacc	tcttcgatgg	ccggctctat	660
catcggaaca	gcttctccaa	accacaaaata	aacggccgta	gctgacagcc	gtcgggtgcc	720
agatctccta	catcgatcgc	ggattggctg	gggtctacggg	atagagcaca	ctgtctgtgg	780
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ccaaaccaat	atggcctgca	ttcggttttg	accggcatag	tcgcgtcggc	gtgcattgta	960
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gcaaattgagt	ggggcgggtat	tcggattttc	tttcaataag	gcgcgaggat	tgatcacggt	2520
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tcttcccagt	cttgacaagc	tttggcgaca	atcccgtttg	gccaaaggtc	aggctcgattt	3120
ccttacctac	aaccacgaat	ttgtgatcaa	ggatagcagg	gtgccttcca	gttcacgaac	3180
attgtgcaga	cattttcggc	gataaagttc	agcaccgatt	cgtccagcc		3229

(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2749 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

gctccgagga	aagccaacag	ccctcctccc	ataccgcctg	cagctccagt	cccgggatat	60
ggactatata	ctgccccgta	tgccgggtga	taacggcacc	aaatgctgca	tcgaatcatt	120
caatcggggc	accatctcct	catccgcccc	ttctgaggag	caaaggcaaa	agcggcacct	180
tcggggcgcg	aaaaagattg	cgcacatcgc	aggccaccgt	aaaaagcgaa	tcggccaaag	240
ccggagtgcc	gaagagtcac	cgatgcgata	gacctccgac	agcaaaccgc	cgcaagggcc	300
atgccctccc	ctatatctct	cccatcccga	tcgtagaagc	gaagcccaat	gcctgtagca	360
tccccagtc	ggcatcggtg	gtggcgctgc	cacgatccc	acgataaact	tacgacaacc	420
tcgatccaga	gcattcttga	tagctctccc	gttccgaacg	tggtagtctg	cataggattg	480
cgccggtctt	cggcacgaga	ggcagtcgc	tgatgctcgc	catttcgatg	aaagccgctg	540
tccgtcagcg	gatataccat	aagaagcctc	gcgcatttcc	attagtggga	gtgtgcacga	600
acggctatgc	gctgcccac	tgtggcagct	atcagtaatc	ctgcatcccc	tctcccccat	660
cagctacggg	cagtaccatt	acttctcaat	cggacaggct	gcccgtagcg	cctcagcagc	720
tgcttctcct	gcctcacaga	ggagagacaa	cccttgaagg	agtctatggc	tatcacgata	780
ttctcattcc	gcatttagtt	tacaacaaaa	tccggaagca	ctgcaaagca	tccaacaaaa	840
attccaaaaa	ccaagagaaa	aaacgataga	caaactaact	cgatggctct	taggtttttg	900
ctctcattct	gtaaaacctgt	atccggaaaa	gcaaattccg	gtatcagggt	gagattgcta	960
tcggaaagga	ctctttaagt	catcaatttt	ttattgtgct	gttcgcaaaa	aaacagcgac	1020
actcagaata	ctttcgtata	tccatcgaaa	ggaagtcttc	ggctctgaca	cctccatccc	1080
gagaataaaa	gccgattggg	gcttgaagga	atgggaaaat	ttgtccaccc	gtctgtcctt	1140
ttctctgcat	tgcttttcac	ctcaatggca	acaacaaacc	tttcttgccg	aggacgaaat	1200
cgacttcac	gtctcgttcg	cgccataaaa	tacctcgaaa	cgatgaacaa	aagcctgact	1260
gacgaggtag	ggtcaatgcc	tgattcgaag	attcgccccc	aggacttgcg	atcaagcatt	1320
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gggaataact	gccttcctcc	ttgccatatc	ataaccaaac	tctgaagtcc	acaaagcaat	1440

ccgctttcat	ccaacagatt	gatatatccg	ccaaggtcac	cgtattaccg	gcattcttga	1500
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gtatggaacg	tatcatcgtc	ccactctttt	ttcacgactt	cactccaatt	acaatctttt	1920
gtatctcgtc	gatcacaaga	ataatgctct	cccactcctt	gcctccttca	ggctacggac	1980
agcagcccaa	caatcgga	ttccaagcag	ttcacagtcg	gaacattatc	ggctgagaag	2040
aactgatagg	gtgcatccag	tccttcagca	cctgcttgac	aaccgttgat	tttccgattt	2100
gacgagcccc	attacgactt	gaatgaatct	cctccgatct	ttaagacgat	ctgtaacaca	2160
tgatactctg	ctcttttata	catatccgca	cattttactc	agtaggtgag	tattttttact	2220
cagtgc aaat	ataataaaga	catttgattc	ataacaatct	cttacaagtc	aataaaggca	2280
atgtgattat	cccataaagg	gtggattatc	atgtattttc	caatagtaaa	tgcaaacacc	2340
tataaacaaa	aataccccga	gggataatcg	ctcgggggtg	gaagccaaca	gcccacctcc	2400
ctaccgcctg	cttctcctgc	ctcggcagag	gagagacaac	ccttgaagga	tctatggcta	2460
tcacgatctt	cttcattcca	cttccggctt	atttgcagcg	atagtcggca	gtccgcaagg	2520
atgcaagcat	gagaggaaaa	gccaatcacc	aaaagagcca	gtatgatccc	ataaggcatc	2580
caaagactct	tggagaaagg	caacgccaat	agttcatctt	gatcttacga	acatccatat	2640
cgtagattcc	ttgtgcggac	ggcttctctc	catttttgct	acgcttcgtt	tgtatgctcg	2700
cgatacttcc	tttccagttg	caagtagaaa	gcattccacca	aggccatgc		2749

(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

gagacaaaat	aatcaccgca	ggcgggtatac	acggcaccat	acgcgaggtc	gcgaaaaaga	60
tttcttnntc	gaaatcgcca	atggcgtgaa	catccgcacg	ataaagggtc	tgtatatgta	120
tctgctcgcg	aagcggaaac	agacatgccca	acaagaaaga	ctaagctgca	taaaagcaat	180
ctatcggagg	aactgaagag	acgggtaggt	attacgtcca	ataacacttg	gcataaggca	240
cccccatctt	tcagttcctc	atcgttctcc	accaaattccg	ctaaaggga	tgaactcaat	300
ctcctcaatg	ccgatcggaa	aaaggggaaa	agtatagaca	aggatccgct	ccccgttcac	360
gccgtgggag	gaacgtcctt	gtctttttcg	ctttgtggtt	ctctctgccg	ttttttgggt	420
tatgcagagt	ctgcaggatg	ttacaccact	tcatttttga	ttcccatctc	ctattccgag	480
ctgccgcggg	cataggagtc	tcaggcaggc	tgcccagaccg	cttggacatt	atgctgaaaa	540
tcagggtatc	gtgcttctga	cctataagct	gaaggggttc	ctctccgataa	tatctcccca	600
tccaaagcgc	aattgcacaa	gaaaaagagc	atgcgacgaa	caaatgggat	ctgggtcgaa	660
tgctccaaaa	acaactggag	acctccccgac	cgttgacgcc	atctcgccccg	aagacatcaa	720
agcgacattc	tacaccgcaa	aaagaaaacc	gtaccctgag	tcataaacgg	acaaaccgtc	780
cccaagaagg	attctacgcc	ttcgatccca	ttctctcgcc	gagcgaagtg	acctatatgg	840
aagtgcagaa	gcgttgggcg	gtatcgggtc	cgtgaatacg	gagagttttc	tatcgacgga	900
ttggagagcg	atttctccgg	tgacatagcg	atgccccgat	cgatgatatc	gttatcgatc	960
cgacaaatat	cagaatgcaa	tgctgttaga	gcaactaacg	gaacaaacgt	tcgaactgcc	1020
gatcataaca	agaatgtgcc	tgaaggcttc	ctccttcgtc	ctctaccggg	caaagtgtga	1080
tacagctcac	actncccaca	tcgcactaca	aagaagtatc	ggaagctatt	tgcaaacagc	1140
cgttttctat	ccgtcctctc	cggatttc				1167

(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

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gggcaaacac cattagcaga actaatgaga ttgtccggct tggtcgttgc ttcactacgt      60
aggtctcctt gtcgaagttt acgtatctga acttgaacca ctcaaactac cattgacaat      120
tateggcaca atctgaaatt tctcactagc gagatattca gtcacacctt ggcaatggca      180
cgcacaaggg gcacatgtcc aaaagacgat tggccaagaa gtcgtgtgtc ttgtttccgg      240
acatcggaaa ggagaggcta tatcggtcga ccacggcatt gcagtcgtcc tcttacagtc      300
tgcnaatcgc ttctggttagc gacagcatca agagccgttt taacgcatta tcaacattgg      360
ctacgacata tactttgccc tctccggcct cgattgtgtc atatccaact tcaccttcat      420
atcgtcagga agccaggctc cccggtgaaa gtgttacccg taatataagt atttcgccgg      480
attcgccctt actgatcgaa caacaaggag ggtaaagatt gg                          522

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(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

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ggtagtactc tgcctttcca aggacctgcc ttttgcacag gctcgcttcg tggtgccgaa      60
ggtctggaca aggttatcca ccgtttcagc tttccgctcg actgctttga gaagggttat      120
ggtctgctga tgaccgatgg ccctttgaag gtctcttggc tctgtccgtc gttgtagtgg      180
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ttcaatctca ttggcacagc cccgattcca ttttcagat ctacaaacaa acgtttcgtat      360
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aggtcggaag gagcatgaaa taatgggtcg gaaagccttt agtatttggg cttatccgtt      480
ttttctgtcc aagacgaaaa gaatggagtg cttcatcctg cagtatcggg atgatcggat      540
agagcggtta tccataggac gagccagctc ttgatagata aaatcgtctc gaatcctata      600

```


tcggcagcat	cctgccgatt	gttgccatag	aaaatccatc	tatgcgtgcc	caatagatgg	660
ctccgaggca	catcggacac	ggctcgatga	agtataaatg	gtacatcccg	aaagatcgaa	720
agtgccgagc	cgcttcaagc	catacgaata	caattcactt	ctgcatgcgc	tgtgggggtca	780
ttgtgaggg	cacacgattg	ctcgctcgctg	caatgatctc	tccatctttt	acttcacagc	840
acccaaaggc	ccccctccat	tggcaacgct	ttcgtcggcc	aacggatcgc	ttcgcgcac	900
atctccttat	cctgttccgt	atgattcatt	gattgtgcat	gttcaattgt	ttgcttccga	960
cagggttgctg	gcttatgctt	gggagtagat	acagtttcat	tcagagtgat	tgccgtagga	1020
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cccactattg	tgacggagac	ggcatgcagc	agagccacct	gtcccacttc	gacaagcgcc	1620
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tcgagatatg	ccccaatgga	tacgtacggg	cgatggtcag	acgacctatg	cgctccgagct	1800
ggtatttgct	cggttcatcc	tccgggatta	ctcaagcgta	actgacgatt	cgctcgcgag	1860
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atcgcatctg	cagaaaattt	ggagattgtt	cctggcattg	atcagccgta	gccgagctgg	2460
attacataag	gagcattgat	ctcctgtgtg	ccggccggct	aatggggatc	gatatcatcc	2520
tcttgtcacg	cggagaatac	tgccaagatt	atgaggggag	gaactattga	atgaggtaaa	2580
gagcttggtg	ttgtcgacag	ataataacaa	tcgacgatta	catcgggatt	gttcagcgtc	2640
tccttcttcc	catggcactc	agatatttgc	ccacttcttt	gtagacagct	atatcatctc	2700
ctcgttgctg	ggcgaagaag	ctgcgaaaga	gtatgtacgc	agatggtaaa	gtccgctttg	2760
gt						2762

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

nagttgctgt	gcgcaataat	gagggtagga	tggtgctcat	caatggcaag	agatttggttc	60
gctgcttata	tattattcca	tcatgcgtcg	caaggaaatg	gcgatttgca	tcctgatgat	120
tatatcgtca	agacgattgt	gactacgaat	tgatccgcga	tatagcgaag	aaagagcatg	180
tgagcatgtt	cgattgtaca	ccggtttcaa	atggatagca	gccgtaataa	gagagaatga	240
aggtctcgcc	gctatatagg	aggtggagag	gagagttatg	gatttttgtg	gggagacttt	300
attcgagaca	agagttcggt	atctgcttgt	gcactcttct	gtgaatggca	gcttgggctt	360

tggatcgagg	catgagtgtc	tatcgactca	tcgcagcatc	tatttggaat	acggctcttta	420
ctacgaaaaag	ggacttagtg	tntgcgtaaa	ggcaaatccg	gagcagaaga	gatagaagcc	480
atgatgagaa	ttatcgtgag	tatgcacctg	tagaactcgg	agctcgccctg	tgcangaaaa	540
tggaactatgc	ttctctcgaa	ggaaaaagatt	cac			573

(2) INFORMATION FOR SEQ ID NO:688

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

cgacgtagct	tgtgtgaatg	gcgatttctt	gtacaacgta	ccatgtttcc	agaagccctg	60
atgcgtgcac	aaaaagatgg	taaaccgaca	ggtactgtgc	tatcatagcg	tctacgatca	120
accagtcttg	ggcttctcct	atgcgcggca	ggatgagatg	aacgaaattc	tgtgcgaaaa	180
acacccgaac	aacatcagcg	tactttcgga	ggtgtcacca	tgaacgggat	gttttgctatg	240
gtggaaaagta	taaaaaggat	ggtgagaaga	tgctcgacac	atggactgta	ttcgcgaccc	300
ctcgtgtctc	gttcgtacac	ttgtcccgc	caaaatgcag	gttcggctcc	ggcaaatatc	360
tctgcctctg	cacagacatt	cgaagtagct	tggaactataa	cggtgctatt	gctacgctct	420
ctgacgatgg	tgatattggtc	gcactgctat	cgtgaaagac	ggtaaggcta	tcatacaatt	480
aaatgagagt	tcgctgatga	aacgaacttg	acgctcaccg	tagtaggata	caataaggta	540
ctgtgataaaa	ggatgtgaaa	gtggaaggta	catctattgc	cgacgtagca	atgataagcc	600
ttatactgta	gctgtatcag	gtaagacgat	aactgtaaaa	gtcctgctgc	cgggctgacg	660
atcttcgata	tgaacggccg	tcgtgtgcta	ctgctaaaaa	ccgcatggta	ttcgaagcac	720
aaaacggcgt	gtatgcgttc	gcacgcgtac	tgaaggcaag	acgtatacag	aaaagggttat	780
agtgagtaat	tcacactgca	attctctaat	aagggtctgtg	ccgaggaatc	catcggcaca	840
gccctttttg	aattattggc	actacgcaa	gagactgttg	agaatcaggc	gagaaaaagag	900
gatgctaaag	gtcgtaaaata	acggctcaaa	ccaatggccc	gttcattctca	taccatgggtg	960
cgcaagggct	acagaccata	acttgagatt	atgtgccata	gtgcttcgtt	ttaggtggag	1020
atatggtcctt	tattgaggaa	aaatattctg	gttatgagag	agaaatcttt	ttttg	1075

(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

cgagggaaaa	cagatccaac	accttacgaa	tcagcaatcg	gatatgccgc	ccgtaccggt	60
agctgtcttc	ctcataccct	ttgcggagga	ggcgtgatcc	tccctcatca	cctgttcgta	120
ttcgaatcct	cgtcccacag	cccagcgacc	aagcggtgca	gacgaccgcg	atcgtccgta	180
tcctttatgc	ttcgaatttg	cgctccaaga	gacgcggcag	gttatcctct	atcttatctt	240
ctccccctcc	aaatccaata	aggtcgaacc	gatgatcgaa	tccggaatat	gccgttgacc	300
agttccaaag	cgatgcgctt	gggaccccg	ccattgaatc	ggttttgtca	cgagcataag	360
cacgggcaaa	acgatcctca	tcaatgaacc	gacttccaca	agccgctgca	gcagccgctc	420
tatcattagc	tcgtctgtcc	cgctgtcgc	agtttggtcg	ccacttctga	tctgcaatgt	480
tccgtacggg	gcagtaggct	tgcattcgat	tcagtagttc	ctcctctgtc	ttcatgcttg	540
ttagcgggta	aatatttttg	cgagagaaaa	cggctcttgc	cggagaggcc	gtgtgcaatc	600
ggacttcaca	ccatcccact	ttggccgaaa	atacttccat	gtggcttcgg	ccagcagcgg	660
attcagctcc	acataaagcc	gtccgcggag	cgtagtttac	cgctgccgga	aaggttggca	720
atggctttgt	agaaaggaga	ggatcctcct	cgggcgcaaa	gagagccaag	gccggttcac	780
gtccagcaca	tgatacgcca	tatcggcact	ttccgcaggc	atgatgtarg	gagattgctg	840
acgataatgt	ccacgggggg	gagtacgtcc	caacgattat	cggagaaaga	atatcgccct	900
cgaagaaaaa	tatccggctg	tcttctccga	cttggtacga	gccgtagcta	aagcatcggg	960
tgaatatatc	atcgcccata	tttggtctga	agttctcgtg	ccaatgtgat	ggccagacat	1020
ccgtgccttc	gccgacatcg	agcagacaaa	gcgaagccgc	cgcaggcctc	tcctttcgag	1080
gatcaactcc	accagtctct	ccgtctcagg	acggggaatc	agcacagagg	atttaccgca	1140
aattcatacc	cgaagaaagg	cgcatgtccc	acggcaactg	tagcggaatt	cctgtcttca	1200
tacgatccag	atagcgagat	agagctgcga	tgcttcggtc	gataaaagcg	tatctttgtc	1260
tgcaagcaaa	agtgggagcg	gcttaggccg	gttgcttcgg	tcagtagccc	tcgcatgatg	1320
ctggcaattc	atccttgtcg	tatcgaccgt	tcagtgtcga	ttcgattcgc	tgtgagcttc	1380
gttaagcgta	atcatcagaa	acaaaattag	caattaggtg	tactcccgat	cctctgtata	1440
tgcgcgctgc	catcgaatta	gcacagaatg	cgaagggttc	acctctccca	atccgcttgt	1500
cggagcagtc	cttgtggcta	tgggcgtatc	atcgggtagg	gctaccacca	ctgtgccggc	1560
atgccccagc	cgaagtcatc	gccataaact	ctgtgcgaga	cagggctttg	ctcagagaag	1620
taccctctat	gtcagtctgg	agccttgctc	tcattatggc	aaaacgctcc	ctgtgccgag	1680
ctgatccttc	gggagggcac	ccctcatgaa	gtggtgccat	gctcgatcct	ttcccatccg	1740
tttcaggaag	aggcatcaag	atgtgcgtga	cgcaggcgta	tcggtccaag	tgggactact	1800
tgcaagaaa	gccaggagct	gaatcggcat	ttcttcacag	cccaacggca	acaccgtccc	1860
tagtcacact	cgaatgggca	gagagtgcg	acggattcat	tgacgcactg	ccgacnatgc	1920
ctccaccctc	cctgtcaggc	tgagtacacc	tctgaccaca	gctttgtgca	ccatagacga	1980
atgatacacg	atgccatatt	ggtgggggtc	gtaccgctct	tttgacaat	ccctctctga	2040
cggttcggca	ttggtacgcc	gaaatccgct	acgtgtggtc	acagatcgcc	atctggctct	2100
cccacgcacc	tcaccctctt	cgatggcagt	gtgcccacac	tggtctttac	cgaaaagaac	2160
aaccctccgg	ctatccctcc	gctgtctctt	tcgttcggat	cgatcctccc	gccctcccgt	2220
ggagcagatg	ctgcgcgaac	tgacgcctcg	cggctacagt	cgctgttagt	ggagggaggt	2280
gcctgtatac	tccgatcttt	catgacagcg	gtctgtacga	tgatgtacgt	atcgaacaca	2340
gcaccattat	ctaaacgagg	gagttcgtgc	tcctcacctt	ccctcttact	gaattttacg	2400
cctgcaatcg	atggaattgc	ggcgcgtatt	ctgcgagatt	taggcgcgta	attacttcgt	2460
ttacgcgcga	gaaatttttc	attcccgaac	caaaacgaaa	aaatcccgcg	ccacgttttc	2520
tcgccccatg	ccccatgcgt	ttttggctga	gaactgctat	acgacggcag	agccgtcgga	2580
tgatggaaac	agatcagctg	agtcaaatca	cagagctctc	tacactacgt	aatctccgta	2640
aagtccaatc	gggtcaaaga	cctgttttct	tcataggact	ttccgcaaat	gtgcaggcct	2700
ttgcttttag	ggtattaccc	ccacgcagca	tcgagtgttt	taggggaaaa	gtccgctttg	2760
tttcgtactt	ttgttcacac	aaatcgatca	taatagaaga	accccttatc	attatgtaca	2820
gaacaaatac	ctgtggcgag	ttcgcccttc	tcattctgcaa	caaaccgtta	ccctctgcgg	2880
ttgggtacag	ccgtgcgcgc	catgggcggc	atgacctttg	tagatctgcg	ccaccgttac	2940
gtactacgca	gttggttttc	aacccgtag				2969

(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

cccaatccgt	cgctccgtta	agaatagagt	tgatctgccc	catcggtaga	acctgtactt	60
ccgtgtcgaa	atcgaaattc	ttgataaaga	tgttattgct	ctgacgaacg	ctaccatccg	120
gccatcgggg	ctgaatgtag	ggatcatact	ttgccgacat	gctcgctcag	tggtttttacc	180
aaattgcggc	gaacatatag	tcgtagacgg	cagcacgata	cgaatgccga	tagatgctct	240
ccataccgta	aagagcaaaa	tatgatgtcc	ggtactgctt	acctcgtagt	tctgatttgt	300
ttaaaccggc	attcgcggtg	tcgttcgaca	ctgaagagcg	tattaccgcc	ttgccggagg	360
cataattgta	gcgaatgata	gccgttcgct	caggttcatc	tccgtatagt	gttctccatc	420
cggcatggag	cgtattccac	tctgcactg	cgagcataaa	acattccgct	cgtgatttct	480
ttcaaattcta	gggtttgttc	cccgctctgag	ccatggcaca	catggttacg	atgccaaagt	540
cagaattatt	accggtcttt	tcataagaaa	gtgtattgta	tcttctttta	gtggttttatt	600
gcttagcggt	tcaatgcacg	atccatctct	cggcgatatc	tcgctctttg	atggatgcac	660
gtttgtcata	attgnttttt	ccctcgggcca	atccgatttg	cagcttggcc	aatccctttc	720
atg						723

(2) INFORMATION FOR SEQ ID NO:691

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 603 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

ggaacttcgt	ctcctgatcg	atagcggacg	ttatgacagg	gctttgccct	agcccaacag	60
ttggtggcca	aaaatccaaa	gcatgccgat	aataactaat	gctagggctt	nttctgtaca	120
nggctgaacg	ctacgaagaa	gctattgtcc	ccttcgggtg	gccgtaagcc	ggcggagtga	180
tgcttatgag	atgttgcgga	tgcttatgcc	aaagagtatt	tcttctccga	agctcttgct	240
gcactgaaaa	acagaaggtt	actcttggtg	agaaaaaaca	ggaaacagtc	tccaagatgc	300
cggaatagac	cgtatgcgac	gagctgtgcg	cttactggac	agaccgaatg	ggtggagggtg	360
atagacagcg	tacggacgaa	taaagccgat	ctctgtcggc	ctacaatctc	atagccgata	420
acggtcgggt	cgaatgggtg	aaggaaacca	aggggaggcg	acttcttttg	tcaatgggcg	480
cggcgaccat	ccatcatgac	ggagaaaggt	gaggatggag	tttncagcct	gcatgaagnn	540
nncggatcgg	tggcaaattg	ggcaatgcga	tccccctcga	aaaactcatt	cccgaattcaa	600
tga						603

(2) INFORMATION FOR SEQ ID NO:692

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

acagagggag	ttcggaaacc	tctccttcgt	tctccatttg	catcttggca	tgagagcata	60
taagagagtt	tgagctatgg	ccgtcggatg	ttttttgctt	ttcctgctat	cgggtgttgg	120
aacataagat	cccattgagcc	aagctcttgg	tggtatctcc	actttttag	tccactatgc	180
gccgacattc	ctcatctaact	catcaatgcg	gtctatgatt	ccgtgtaacc	gaaccgggct	240
accatgctaa	gggagaagct	gcctttgact	ctgcgctccg	agtctatgta	gcgaagggag	300
ccaatgattt	gtatgctcc	aagatccgcc	gtacatactt	ctcatcatga	tgcaataaaag	360
atgattcaat	cccgcataag	ctccctgtgt	atggccgatc	ggagatattc	ttccgtgtat	420
gcttgccctta	ctatcctcgc	gtagttgcac	tcttcggatc	caaccaccga	gataaaatat	480
ccgaagaaac	atcccaccac	cgcaacaagg	ctttagatgc	aacttcatgg	aacgatgcac	540
acggaccgaa	atcattggcg	gccatcagtt	catcggaagc	attctctccg	tatcc	595

(2) INFORMATION FOR SEQ ID NO:693

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2436 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

ttgcaaaaagg	agctattcaa	aaaaacacga	accggaaatg	ctccgattgg	gcgcgtattc	60
cctgaaaaaag	tggcgcgaga	attttttcgt	tgtggcgtag	aattttttgc	ttcccacgcc	120
aaaataaaaaa	agttttacgaa	ccgcgtttga	ggagtagcaa	acgggaaaaat	tttggagcct	180
aaaccaattc	ggttatatag	tacatgttcc	tgatcttctt	ttctgaaaag	gcttgatagg	240
attgaggaac	gttttctttt	ttcttttgct	ttgattcggc	tgttagtga	caataaaaaga	300
gaaaaagaag	aagcctcttg	ccgagacaac	cgagcggttc	ttgcagaggc	ttccttatgt	360
attggtgcaa	agtgcacca	tgagttctt	aaaccgagat	tctacaatat	cccagtcac	420
gatactccaa	agatctttga	gtggtcggca	cgacgattct	ggtaagtcag	ataatatgcg	480
tgctcccata	gtcgaatccg	agcaaaggat	tcaacccttt	gcgcacggga	ttgccggcat	540
gggttccttc	tcgatggaca	gtttgccatt	ggcatcggat	gcaagccaac	ccagcccga	600
ccaaagaggg	tggtaccggc	tgtgttgaa	tcctcttgaa	cttttcgaat	gagccgaatt	660
gtttgtcgat	agcttcccc	agtttgctt	cggtgctcct	cccttgcccg	gacggaactg	720
agtgaatatag	agatttggtt	gagggtttgg	ccggcattgt	tgaagatacc	gccttcgctc	780
tttttacgat	ggtattcaag	tcagcgtttt	caaattccgt	gccgatgatg	agctattgag	840
gttggtccaca	taggtcttca	ggtgcttacc	gtggtggaat	tactgtttc	tttgctgata	900
acaggagcca	gtgcatcgac	cgcataaggc	aggaaatgag	ttcgtgagtc	ataacgtctg	960

atTTTTattg	taattaagtc	tttaataatt	tgtatcggag	cagtgtaaaa	ccgacaccga	1020
caatttttta	tcattataag	aacatgatga	acggaaaaag	gttcgaatct	tggtcgtaaa	1080
accgattcat	tccatgacga	aaagatagtt	gctctcatcc	gaaagctcgg	ccggaagata	1140
aaaccttcgg	gcgaaaagag	ttgcatctct	tccacaggcg	gcacggcgcg	gtgaggaggt	1200
gggctgtcat	cagtcgcgct	gccatttggt	atagatcacg	atctgtttga	gacctccatc	1260
gggctgtggt	acttgaagag	gggtgtcact	acccgtacgg	cttgttctac	tcgtttccag	1320
tcgatagcat	tttcattttct	tcactggcca	gaaaacatag	ctcaccaccc	tttctcgtac	1380
cttttcgata	agaaaaatccg	taagatacgg	tcgccagaag	tgaatacttc	atcttcgacg	1440
ggtgccccca	gatgggcaaa	tcctttccatc	tgtatggacg	aatcatgtca	ctcgggtcgca	1500
aaagaccgta	gaggaacgag	tgataagaag	atgttcggag	gcatagagcc	aatcgctcagc	1560
attgaaatgg	caggagcaag	cttcttgaaa	accatacccg	tataagccaa	tgctgccgag	1620
cagtgggtga	atcgctctcg	aagaagtgtc	gccagcgctc	gtgattttct	ctgccaaact	1680
tctattgata	cggagtagtc	gggatagttc	ctttaaactgc	aggaagatgc	agctaaagca	1740
atctttgtgg	tctgtctcatc	gaagtcgncg	aagtggtcgt	caaagtgtgat	ggcaaacgct	1800
tcggaatacc	gatgtcttgg	cacatgaaag	gagtatgagc	ataaggcttg	atcctgatga	1860
caaaaagaag	aggaagcctc	cgtctgtata	gtgatcgggtg	ggcttctctc	cacttcgttt	1920
tttgttactt	ggtggttttg	gacaaaatgt	ctttcatcag	acatcgaaat	actctccgcg	1980
ggtgagcaca	ccgtcctgta	cggctactat	tccacttcgc	cacgggctgc	catcacaccg	2040
tcttctctga	taatgtccgc	atgaaaatga	gtttggggcc	tttcttgtgg	caggtcagac	2100
agctacgaag	cgatcgccgc	tacgcaagga	ctggttgaaac	gttatggtca	ctttgtaacg	2160
aaagcatcaa	gacctttttc	gtgcatttgt	ccgaaattat	ctccgggctt	tcccagaatt	2220
catggcgggg	gtgctccata	tagcgctgat	agttctgttg	tttaccacac	cctgcaagtc	2280
gcattcatag	tctctcacct	tcagtcgagg	gagaacaggt	attctttctc	tttcataatca	2340
ttggggtttg	tcgggtttgag	aggtgataat	tcgctctcgg	tccctacatc	ttattcttct	2400
ctttgtcgaa	ccggtagagc	ttgtccgaag	gacgca			2436

(2) INFORMATION FOR SEQ ID NO:694

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

ggctcaagag	attctggcca	agatggataa	cagcctgccg	cgtctggcca	atgcgacatg	60
acaagagctg	accggtagct	tccgaggtat	gggaccggaa	aagcagtcac	cgtgatggca	120
gcaatggaac	tgtcccgccg	tatccctcgc	aagagatgcc	ccgcagagaa	tccattaccg	180
atagtcgaat	ggcctacgaa	ctataagccc	atthctcaca	gacctgccgc	aggaagaaat	240
gtgggggttac	tcctcaacca	aagcggaaag	ataatcagca	tggagaacct	tagcgaggag	300
gtgtatcgga	gacttcggcc	gatgtccgtc	tgatcatgca	caagccgtct	ctcatcttgc	360
ctcggcaatc	attctggcac	acaatcatcc	ttaggaacgg	tacgcccaag	tgaacaggat	420
attcagctta	ctcaaagggt	gaaaaggctg	ccacattgct	cggatttcga	ctgaacgacc	480
atctgatcat	ggtgacgatg	gggcataatt	cagtttcgct	gacgaaggcc	ttctctgatt	540
ttctctgaat	ccatacaagt	aaatagagag	tcggactctt	tcttcttgtt	gaaaccgatg	600
agaaatcaac	caccggaaca	aaaaagccgg	gtcatccttt	atatcgccgc	atagcaagag	660
taccgggtgt	cgcataggcg	acatttaggc	agatagcagc	ttctactttt	gtgtcatcaa	720
agaacaatga	tcgataacat	aagaaggaga	ctcgacaatg	gaaaagaaaa	tgttttgcta	780
tcaagccagg	aaacagcccg	caataaggga	tgtatcctca	aaggggtatg	cgggaaggact	840
ttagtacagc	taatctgatg	gatttgctcg	tctttaacct	caaggtattg	ccatcataat	900
gacttctatg	aggcgtgccg	gagtgaagac	cattaccgaa	aggctgacaa	ggcgatcatg	960
gaatctctat	ttgccacaat	accaatgcc	acttcgacta	ctcttccata	gccaacgctg	1020
tagagaaaag	ttcgcaactca	aagcgggaatt	gtacagtttg	gcttttactc	aaggcataag	1080

cttccccgaaa	atgaagcagt	gacgatgcag	ggaaaagccgg	aagaatagat	cggttggctc	1140
tcagtgtagg	tattctaaga	gagacagacg	aagatgacgt	tctctcaaag	agctgacgat	1200
ctatggactc	aaaggatttg	cagccatgcg	gagcatgagg	atcgactcgg	ctacgtggat	1260
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tcggttcgcg	cccgggtatc	cttatcagcg	tcatgatctg	aaagatatgg	agatgctgct	1500
cgagcaaaact	gaagggaacag	aatagatgtg	tacacacacg	gtgaaatgct	accggccaac	1560
tattatccaa	attcaaaaaa	tacaaccact	tcttcggcaa	ttacggcaat	gcatggtgaa	1620
acagcgtgag	gagttcgaaa	ccttcaacgg	ccctatcctt	ttcacccaaa	ctgtatcgtc	1680
ccccctaagg	ccaatgcttc	ctacaaggat	cgggttttac	caccaacgct	acgggctatc	1740
cgggattcaa	gtacatcgag	agcgtcagca	cgggcgcaag	gacttcagcg	aaatcattgc	1800
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gccaccatca	ggtattgagc	atcgccgaca	aagtagtgga	ggctgtcagc	atggagcgat	1920
ccgcaagttt	gtagtgatga	gcggttgatg	cggccggcag	gtgggcgcaa	ttattacacg	1980
gagtttgccg	aagctcttcc	ttccgatacg	ttatccttac	atcgggatgc	gccaaagttcc	2040
gatacaacaa	attgcagctg	gcgacatttg	gggcatccct	cgcgttctcg	atgccggaca	2100
gtgtaataca	gttattcgct	ggcggtaatt	gccctgaagc	tgaaagaagt	aatgggttgg	2160
atgacatcaa	caaactaccg	atcgtctaca	acattgcatg	gtacgacaga	aagctgtcat	2220
cgctctgctc	gcctactcca	gcctcgggtg	caagacatcc	atgtaggccc	taccctacct	2280
gcattcctat	caccgaatgt	agcaaagtgc	tgatcgaaaa	cttcggtata	gcagggtatcg	2340
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gtatagacac	aaaagtatta	aatactctgt	gaaaagcttg	taagcttttc	acagagtact	2520
tagaaccatt	tcgatgaata	gttaaaacat	ttcgcggaaa	gcttaagagc	ttttgccaga	2580
atagatccta	atctttctcg	aaaagtggct	aatcaaacgt	gagttcgatg	taagcgatat	2640
ggtgccactc	tctcttggtg	ggatatggac	tataatcgaa	tcagaaaatg	aaaggaaaaa	2700
gtttgacgtc	tcacgcatg	tcgaagcctc	tcgaagctga	aattctcaac	cgagaaaatga	2760
aatacgtgga	caaacagcat	attgcatatt	ttctcagatc	gaatccgcat	tgttttatag	2820
ccattcggaa	catacgccga	aaggggtcga	gctacgcctc	acagcgactc	gggctacgcc	2880
gtagagcgta	cgagctgcgc	tctacggctc	ttcaagctac	gctgtagggc	tcaccgcgcc	2940
ggccctacgg	ctcagctcgg	ccacatctac	ggctcacgga	gcggaactca	cggctcggct	3000
cgctacgctg	tagagcgtag	ctcgccgagc	tctacagcta	gctcgaagag	ccgtatggga	3060
tagcccggtt	tcctctacgg	aataccgcat	ctgccttggt	gtatagccca	tcttccgggtg	3120
cggactgcaa	cattcgtaaa	aagcaatccg	aatttcaatg	ttgggtccgat	ccgggcagaa	3180
gcagggttgcc	ccctatacaa	ttgcctgaac	ggaacaacct	ataactccca	agatttagtg	3240
tgtaacccgc	taactcggga	acgaatacat	tggcgtttct	taccggaact	gacgttaatc	3300
aatgncgcaa	gggacatcag	caaaaaataa	acccgaaggt	tttgcggaac	tttcgggatc	3360
tc						3362

(2) INFORMATION FOR SEQ ID NO:695

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

tgcgctatgt	aatggagcag	attctctttg	agttgtgagc	gcagttccct	atttcttcgg	60
acgggatttg	ctctattatt	tcccaagcgg	attcttcacc	tgacggctga	gaaaatccgt	120
gccaaagatgc	cgttcataga	acctctgctc	tccggagaag	cccaggctcg	aaggtgtacg	180
ccattggtga	catgtctaca	tgcagctctt	cggcaaaaga	gccggggccat	acgggagcga	240

acatcttcgc	gagactactc	catgcagata	gctgactcca	ttggcctcct	gacagtgttg	300
agtgc aaaga	cactcatgga	gaacttttcg	ttcgagcccc	gtgcgttcgt	cccatgtcga	360
tgaactcctg	ccagctgatg	ccaagtctgc	gagaaaatgt	cccatgtaac	gccccaaaag	420
ctcttcacgc	aagtagtcat	gcctgcccgt	acaggggtgt	gaaccgtgta	gagcgaggag	480
gaacgaacag	ttcaanggca	atatcgaaac	tcaatccctt	tggttcacat	agtcnggccg	540
acgttgagca	ttgatca					557

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3301 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3301

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

caaagatacg	gtccatcgct	tgggtgcatga	agaagaagat	ggccttcccc	ccttattata	60
gatgtatatg	gacatacggc	ctnatgcagg	cacacagcta	ggtatgccnc	cacgcacgan	120
cggatatagc	gaaggctctt	atagcgagac	tgcaggcttg	gtagatgccg	tttattacaa	180
gtcggacagt	actctacatt	caaagccgga	ctggaatcgg	ccgatggctt	cctgatcggg	240
tcagccaagc	cgaagcagag	tacgaaaacg	gacttctctt	cctgcccgcg	tggacaaagg	300
acagaagacg	gggttcttta	tcgaccagcg	agagaacagg	gcctgctgga	ggagtatgcc	360
tccggacgta	agggtgctca	tatgttctgc	taagcgggtg	tttctccctg	tatgcaatga	420
gaggaggagc	atacaaggta	cctcggtgga	tagctcggcc	agagccgtgc	atctgttgga	480
gaaaaatatg	cactgaattt	tgcgggagac	gatcgctcag	aatcttatgc	cgccgatgct	540
tccatttcct	tgacgagatg	gctgtcggag	cttatgatct	gatcgtagcg	atccaccggc	600
ttttgccaaa	catcgcaaag	tgtgcgcaa	tgcgctgtag	gttaccgcaa	actgaatgcg	660
gtagcttttc	gcaagattgc	tccggggggc	tgtctctcac	cttcagctgt	tcgcaagcgg	720
tcagtcggga	ggaatccggt	tggcgggtct	taccgcagca	gcacgcggcg	gcagaaaagg	780
gcgatactgc	atcagcttac	ccaacctgcc	gatcacccca	tcaacatcta	tcaccggaag	840
gcgaatacct	gaaagggtct	ggtctctacg	tagaataact	actcgaggaa	taaaagtccc	900
ggccctatgc	ctcatgccgt	ccttgngggg	ataaaggatc	aatggtaacg	atcgtaaagc	960
cgctccaatt	cgctgacaa	cgaagccgat	cgaaccaact	attgagactg	tcctgcaagg	1020
aggttgcnct	cggcgaccca	accatgcctg	tcgcagttcg	aaagagagcg	gtacactgag	1080
tccaacgcag	ggaggagttg	ccccagcttc	ttagcttcac	gttgggttcag	acggtcagat	1140
cgatgtcgtc	cgatgccacc	atcatggcca	actgcttgca	gaataagtgg	gatcggttcg	1200
tatatatata	ctatccccga	tttcccgga	agggtgttga	cgaacaacct	cgccggagag	1260
ccttccggaa	tggtagcgtc	cgtccggaca	aatcgatctg	gcgacgaatc	agagcagtat	1320
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gcaacctttc	aaggctctct	ttccaattct	ttccagaccg	atttctatcc	gaatgccact	1500
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tcattttccat	ttattttattg	aagtgtatgg	aatacccata	cgacagaccac	gaggggttga	1800
cggcgtatgc	accaagagaa	acgcttgcta	tccatgaaaag	cctcagccag	attgtacatt	1860
tcaagaagaa	acgtgagcgc	ttgaggtgga	tattccacata	agcattcatc	aagggaaaga	1920
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gcatagtagg	aggaatgaat	gcgagcatca	ctcccgtctg	tatacgcatc	accttgggtac	2040
tgctcggcag	acggaagtca	aatagagatt	gccataagcc	gccagcttcg	gtaaaggcaa	2100
agccgtaggt	tgctacttgt	ttgataagcc	gcttccactt	cccatcccaa	agcaccatc	2160
ggtaggcatg	tgctatccgc	ccttcgagga	cttgtatggg	agaaggacct	gttgggggaa	2220


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agccgtatgg tcgaaatata tatagttctt gagctagcgg attgcaacgt caaggtcgta 2280
ccccagtcct tcagacgaag agaccaccca tctgagttgc tggatgaaat cgaacgattc 2340
gtcccaccag tgacagtacc atgatgatga cgcagaaagt agcccggacg agtattgaga 2400
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tcctctgagt ttgaatgctc cggcatcgct cccgacgacg aaagctctcc atcggctgca 2520
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tgtccgtagg gggtagacga ctactgaatc ttgtagcgta taaaacctat tctccaacct 2640
gacatagccg tcaggccgaa cttagcccag cgatggaaac cttcccgcga agaaaagcca 2700
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atcattcagt cgtttgataa acagattggg ataatcgaat tgtccaaagg attcttgacc 2820
ttgaagcgac ggcgactttt ggataattga aagtgtggga aatactacc acgggcacga 2880
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ccctcacgat agaaaccgag gttgtagcga tgggtcagac gagccgttct tgccgaagcg 3000
aattgaacat attattgccg ggaaacttca ccggaatacc gtcgatacga attcgttcgt 3060
tccattggca aaattaccg gatggatacg tagtcatcat tcgtaatccc cccattctcc 3120
gtcatcagat agtaatgttg cccacataag cataggcttc gtaacggtcg gaacggtagc 3180
tgccgagaaa cggtaggaga tggctttcgt cttgttggag ttgtagaaac cgttctgtag 3240
atataatcca catcgttacc aatgttgact cgcttgccca tatcaaagcc aaagtagaac 3300
g

```

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 280 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

```

ttgccgctat gaaaggactg gcctctgtcc ttgaggctga agtactccgg aatagcacccg 60
ataaatatcga ttgccacgaa tagaatcacg aaggagccat gatctctttc aggtcgataa 120
ggctcaaadc ttgtaatact ttgtctaaaa atccatcggt tctgatttgt ttgatagtta 180
aggttgaag gtccggtggt tgtcacgacg ttgacagtcg caaaattaac gtttttcgcc 240
ctatcaaaga taaccatcgg cgaaaaaagg tactgccggc 280

```

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

gtactcagcc	ccgtcgtaca	ggaaccgaga	aaatgggtgca	acgtacagcg	gacgacctgc	60
agggcgttgca	actcaaaaga	gaccggctgg	aagaggaacc	tgtaaacggg	acaagtcgag	120
agcctatattg	gtggatgacg	aagcgtgaat	aacaagatcg	aagagatggg	ttttatcggc	180
ccggaagatg	cgattacctg	gccggcatgt	atgccgaacg	tacggcggtc	aacgccaagc	240
gctggttata	aaaaaggttt	atcaactggt	ggaactgctc	tttcatgccg	tcagctgggtc	300
atcgacacgc	tccgcacatt	ctttctgata	gtgctgtcca	tccggggccg	atcgtgttcg	360
gtatcgccgt	atgggacgca	ctcagcggat	cgtgacagcc	tggttcagcc	gctacatctc	420
cgtctatctc	tggctgccgg	tagcagtatt	ctgacagcac	tgctcacgaa	gatacagatc	480
ctgatgctca	caaggagatt	gcccagttgc	aagacgtgaa	ctatatgccc	gattcgggaa	540
ctggtactac	atcgtcttct	tcctgatcgg	cattctcggg	ttcttcaggt	accgactggt	600
tccgggatgga	tcatacgaagc	ggg				623

(2) INFORMATION FOR SEQ ID NO:699

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 718 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...718

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

gtggaaggat	atcagaagat	tgtcaaatata	tttctttgat	gatcgggaatg	cgttctgtcc	60
gatattgcaa	tcaagcaata	tgaatttgca	ggaccacgag	cttacttcaa	ttagcggatc	120
acagagcgag	tgcaaggaa	gagtcaaata	catcccgat	ccgattgctt	tttcttatac	180
ctttcctgaa	aagtggaaaa	aagacctggt	caaaagctgg	tagaaaagca	ttggagagac	240
gaactctttt	agtagcgagca	ccactgggtg	ctggaaaaaac	ggatgcagca	ctctgtgggc	300
ttctcatcaa	atcaaacaca	gaaaagcaga	ccgcttgatt	attctatgcc	cactcgtttt	360
acaacaaatg	cactagctct	aagcgtatct	tcaccctttc	ttctacaggc	ctgtatcatt	420
ccagtgcag	gacacagaat	tcagtagcaa	aatagacaac	ggggaaatag	ctttagagca	480
ggcaagatac	atcataacca	agctcgctta	ctacagaccc	ctataacggt	atgcaccatg	540
atcatctcct	ctcttcattg	actctttgtg	acgaggaaca	tcagaccata	cttttgcaat	600
ggcaaatgca	tgtctcggtg	ttgatgaggc	agatttcatg	atcaatttac	acaagctaatt	660
atattagtat	tactagaggg	tctaaatatg	gaaagtgcgc	atattgctga	tgagtgcc	718

(2) INFORMATION FOR SEQ ID NO:700

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 541 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...541

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

aacggatcac	ccggcgagcg	atcgggggtcg	tattgagtg	cggagcagcc	tctatctgct	60
gaacgnatgg	atactgagcc	tgccgggtcg	catagacctc	gggctgtctg	ctacctcctt	120
acactgagcg	caggatttat	ctgtctgtga	tggccgggtc	ctggatcagc	cgctgttgga	180
agcacaacct	gatggagatg	tattcaatgt	ggagaatgaa	agtttcatgc	aggaaacccg	240
tctgagacga	acgagtattc	ggtgaatctc	ccgactcggt	tttattaccg	gaaaagtggc	300
gcgacgggtg	gatcaatgtc	gtgaatcctt	tccgcgcgag	catgtgctcg	gtacgccggg	360
gtcgggaaaa	tcctacgcga	tcgtaaataa	ctcattaagc	aacanatcga	gaagggattt	420
gccatgtata	tttatgacta	taattccccg	acctttcccg	agatcgctta	caaccatctt	480
gcttcagaca	cggaagggcg	tattgaagtg	cagcccgaan	gttttaccgt	aatcaacttc	540
g						541

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 443 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

gccaatcaga	acaatcctta	cttccgaccg	aatcgagagt	ttgcctttct	cgccatacaa	60
cggacgaaat	acttcttgtc	gcagcccaatt	ttgcccacac	gaagcagaaa	tcagggtgat	120
tattcccga	cacgcctttc	agacgatcag	ataaaggaca	atgcagcttt	cctgctgacc	180
gatatgctct	ccggagaaac	agcatcggct	gtctcaccca	atacgcccc	taccgcgtac	240
atcttcggcc	tacggctatg	cctgcatcg	cttccgtccg	ctttagacgg	atcagccaat	300
tctcctatag	ctctttcaac	gggtgcaaaa	aacaaacgag	ggttatcgaa	aagaatgaaa	360
catcctcggt	cttataaaga	gaatcgtatg	cttttgaagc	atatgatcag	taggaatttt	420
agttnttcca	aaatctgaaa	att				443

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 952 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

gcttggggcgc	agtggacttt	acggtggcgc	tgcactacgt	attcgatacc	cctacgaccg	60
tatcgtctgg	gacgtgggac	atcaggctta	cagccataga	tcctgaccgg	ccggcgcgaa	120
gacttccgcc	atttgcgcca	atggggggca	tcagcggttt	cccctcgctt	aaagaaagcg	180
aatacgacac	attcccgcgc	gacatgcttc	caactctatc	tccgcagcac	ttggaatggc	240
tgtggttcgg	ctgccaagga	tgagaaacgg	aaggctcatg	ccgtcattgg	agacgttcca	300
tgacgggagg	tatggctttt	gaagggtga	acaatgcatc	gtcttcccga	acaatctgct	360
gatcatcctc	aatgacaaca	acatgtccat	cgcaggaatg	tcggaggact	gaaccgctat	420
atggtggaca	tcctcactag	cagacgtata	atacgattcg	ttacgacctt	tataagggtc	480
tgcgaaaaat	aatctgatca	gcgagacgaa	cagaaaaaat	ctcctgcgct	tcaacaacac	540
ttcaaggcac	tactggcacg	cgagagcaat	ttattcgaag	gattcagctc	cgttatttcg	600
gccccgtcga	tggcaataat	gtgctccgct	tggtggagta	ctcaatcaga	tcaaggatat	660
ggccgggcct	aagatcctgc	acctgcaacg	atcaaaggta	agggctactc	tccggccgag	720
aagcaggcta	cgatcggcat	gcgcggggcg	aattcgacat	caaatcggga	gaacgtaaga	780
aagggagaac	aagccccgagc	cacccaagtt	tcaggatgtg	ttcgggcata	caccgtggag	840
ctggcggaca	gagacgagcg	tgctgtcggg	gtcaccgccg	cttgccgaca	ggttgctcca	900
tgaccttctt	gatgaagaaa	taccgaata	ggcctatgac	gtgggtattg	cc	952

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1048 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

cccctcgctt	atataccgag	atactggaca	aatgagacac	tgtgcaacac	aatagacagt	60
acaaaaacaa	aatatggcga	aatgacagcg	agcaaaatcc	aataaaaaaa	gtgtgtgagc	120
attgcaaaca	ggagtttata	gctttgagac	gactaccaag	tattgtctac	atagatgtaa	180
tagcagagcc	tacaaactca	aaaaagagaa	gagagggtac	gcagaacaga	actttctgaa	240
caagaaaaaa	ggtcagtgat	attatagaca	aaccttatct	ctccatctca	gaagtgggcg	300
attacttggt	attagtaggc	atacaatata	tagatatatc	taccagggaa	cttaaaggct	360
tataatttga	gttctcaacg	ctcaatcgtc	aacgtgaaga	cattgaacgg	atgttggcag	420
agcgacctta	tgagaaacga	cgcccagaga	tgcaatcgta	attacggaac	tatatacgac	480
agacgaggtg	gcgatatcca	caacatatct	cgatcttctc	tttttgcaat	agccaagcgg	540
agaatatccc	tcgaacttat	aacagaggca	agacctattg	gagcaaacgc	atatagatgc	600
ctatttttgc	aaacaggctc	ctgcttctca	tatcgaaaat	ggtgtacagc	cgtggagata	660
caagaaagat	tcgatatgac	gctcacgcgc	tttacaactt	catctctgat	cacaacatcc	720
ccagaaaagaa	agtcagggtg	aaagctacta	ttccacccaa	catgtcgaag	cagctaaagg	780
agtgttgata	aggcagctcc	aagctactat	actgttcggg	aggctatgga	aaatttggtc	840
ttactcgtga	ccagctctat	caatatacca	aacgttataa	tgctcctaac	taaagcaagg	900
tcggaatgtc	ctcatttctc	agcaagaatt	gatgaagtcc	tcaaacctcc	cagcatcact	960

cgataagtta tttgttggtg tatgggacac cctcttatca ccttattctt ttgcaactga 1020
atcaataaaaa taaccctcta atcaacgg 1048

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

tcnngctgtc	tcgctctcct	tcggggcctg	ttctttggtt	ggttacttgc	ataggcgtac	60
tgctgattcg	tttcggtatt	cgcctccgtt	ccctcctggt	cttattttgcg	gtgccgaacg	120
ggcggagata	gaggggtgtac	ccgtttatatt	gctcctcgtg	taaggatgcc	gttcagcttc	180
tgtaggcgta	tttatctccg	accgatctgc	gctcataccc	ttctgtgaga	aatgttctta	240
tccataacaa	gaacataccc	gagcaacgca	ctttgtcgat	cttttgatcg	ccgagtggca	300
tgcattgctgt	tttggttcaa	tccgtttgct	tgggctttga	agccgatatg	cagcgcaatt	360
tggagttttt	ggccgatcgg	gctgtgctcc	tcgaggcgtg	agcagacgcg	aatatcaata	420
tgaattggtg	ggatttacgc	tgaggtcgcg	gccggacctc	tgtgtagttc	ttacaatata	480
aacgacttaa	agaaagaatc	agaatgatga	acaaaacgaa	atccaatcgt	gcggccggac	540
caggatatctt	gtcgcaactcc	cgttggctgc	ccttatgctt	ctgagcggaa	atggctgtgg	600
gcgggcaatg	ccgatccga	agtccgggaa	gtagtagaac	cgttgcgagc	gatccccgcc	660
ccttgctga	tgctcctgac	atctcctgca	gcaggacgag	gactcgtgtg	gttccgagct	720
agatactcca	ccatcttccc	cgggggaatg	tccgaactga	tgacttttct	gagcaagaat	780
ttaagtatcc	ggaacaatct	gcaaagaaca	gcattccaagg	tcgagttgtg	gtccgtttat	840
tgtcgaaaaa	gacggcagac	tgactaacat	acaagtggaa	aaagcgtagc	acccgaa	897

(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 374 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

tggtgaatt ccatgtatcg agactccctg tcagatagcc ggtgatgcgc gcaagcgagc 60

tatccgatcg	ctgccgcata	caggacattt	gtcgtagaca	cacctttgaa	gccacagccc	120
ttacaggtat	ccacaggatg	attaatcaac	catagccgat	gttttcatcc	ttcatcatct	180
tgacaatttt	gaggataccg	atacattctt	cttagcttcg	ccatccaact	ccacataagt	240
aatatgccac	cgccggtaat	agcatggaaa	ggagcctcgc	acttgatctt	ttcactatac	300
ctatcgattc	gcgaacatcc	acatggaaa	aattgacgta	ataatgcaaa	atccgttacc	360
ccggggataa	tccc					374

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

tattcatcca	gataatagct	cggataattg	cggttgcatc	cctgcacatt	tccttgtgtt	60
cgggaaacatt	ccctgattcg	tagtcttcgt	cttcgacagg	atgagacgat	tctcgtaagc	120
gaaattatgg	gttgccataa	ctgtttatgt	tttgtcaggg	ttagaaaaatg	tttctctatg	180
gctgcattca	gcagtgatca	tcgtcgtatt	cgtcctgaga	gaggctgatg	ctttccgcat	240
ctttgcatag	cagctttctg	cgacataaatt	ttcccaactg	tacaggcgta	cataccgttt	300
cccttattca	ccgaaaccac	aggcacggtc	ttaaatccga	catgcacaac	agcagttcgg	360
tcaattcaca	ggcacgattt	ccgtattcgc	ttccacgata	agaatggaca	cgtccgaacc	420
cgtttttatg	cggtaatgcg	agaggagtta	tttcgtttcc	tgcgatccat	tgagtgtatt	480
aatctttctt	ttccataatg	ctgacatttt	ttttgcgtct	aaagctcgga	gtgtgccgat	540
tcgtttcgtg	ggctgttcaa	ggtggccgga	gggtatatgt	caaggcttcc	gaaaaaatac	600
gacttggaac	gaaagtggaa	atgtgg				626

(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

tgagacaaaa	acggattgcc	gaatgtattg	gtgacctgaa	gggctgctcc	aatagcatgg	60
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caaagaggaa	gaagatagcc	atacgacgtt	ggcggaaagg	acaaaagcat	ccagccccaa	120
gacggcaagc	accccttct	tcttgtttct	tttgcaggag	ggcagtgagg	caaggtaaaa	180
gcatacaatc	ccaatgaagg	gaagccaccg	cactgacata	gaattgcata	ctgctcatta	240
cccatcgcat	atatcgacgg	tccacatggc	caaatgaag	ccgacagtac	cccaacgcgt	300
ataggaggaa	attcgcgcac	tatatccata	ccggctttct	ccaagcagta	taggctatcg	360
aattggtgag	agctagggtg	ggcatatagc	tctgcagagc	aggagcataa	cgggataaaa	420
aacggagtaa	ctactcagcg	tgaagcataa	ccagcaatat	ggctccgata	agatggcacg	480
ctcccaagag	tttgtgc					497

(2) INFORMATION FOR SEQ ID NO:708

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

acttcatcgc	cgtagcatag	gactcctttc	cctcttcttc	gccactttta	tcttggcgaa	60
gacgaaagga	tcgtaggcat	agcgaaaggc	ctgggtgaca	tcacatgat	gatggccagc	120
ttgtagcacg	cgccatagat	accgagcgtg	ctttcccttc	cgccggatcg	tcgaaaagca	180
tgggaaagag	aatctttcgg	cctgattgtt	gaagctgccg	gccaagccca	acagcagaat	240
agggagaagt	aggccagcat	cttgccgaga	acgtccggac	gaaatacgcg	gccgcatgcc	300
gccaatgagg	aaaaagcatg	accatctgca	cgaggntgca	aataagttga	tgacgaacac	360
gtaccccaat	tcgtagtctg	ggcggtagaa	gcatacatcc	actccggatg	taaggcataa	420
ataccgggga	cacagggang	agaaaaagat	cgtaaggacn	atgggtcanc	aggattgaat	480
gtca						484

(2) INFORMATION FOR SEQ ID NO:709

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

tgtgcagaca	cttttaagat	aggtctgtaa	ttgtctcaga	gtatgaatcg	tcgcccagct	60
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tccttaaaag gaggtcgggc gacttcgttt ttattattct gtccggtaaa cttgtcaaga 120
ggagaccttt gaaaaa 136

```

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

```

gaattcttcc ttttttaata ttataaacia ccagttcctg tttggctgtg tatctttttc 60
cttatcaatc tcagacccaaa gaatatattt aaactgctgg catctctgtt tcttgataat 120
tcagtataaaa taggtttgtg atattcgtac tatctaaaaa agatttatat atctcatatg 180
cagtacatgt cttaccaatc cagctgctgc ttctacaaca acaagatgtg caccttttct 240
attgatgttt ctttgattac agaaatgata tcagaagtcc catttatagc atctctgcat 300
cttcttttga aatagagtaa ggcatactga tgtactggta cttatgtcac tgccgcaata 360
atgctttact tgattagtgg gcaaattctg tgatctccta ttaatggcat ttgcagtggg 420
ttgtggtgtt aaaaaaaacc ttaaacaat aacctctctg cttcttcnat aggatctgga 480
acct 484

```

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

```

gggttgcatc gtaattacgg gcacaagcat ctcttcgagc gatatgcctc gtgctggaat 60
gtattgcatc agtattgtac gtagtagttg tagttattgg gtaggcgaag aagtcaccc 120
ctttcgtgaa gatgaatttg tccgagagtt gttatggggc agccctacac ttgcaggatc 180
tttgatctcg aatactcttt cgggtttagt tcgaggttct tacctatttt gtatctgagg 240
ttggtttggt acttctgtct ccgatcactt tgacgggatt cttcacctga atagaccatg 300
gtcagtggtc aataccactt tataaccatc ttccggcaatg ctgggaagag attgtaggta 360
gtcgaatgct tgaaccagct tcttcgtcag cggcgatagg ctgcttcgtt ggatgccagg 420

```


tctcgaatca tcttgctatc agtacgagca tgcgacatca tgtccaccga aagttcagga
ctatcacatt agttgggttc tgcgacagt

480
510

(2) INFORMATION FOR SEQ ID NO:712

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 549 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

acggcatcaa	acaaatcgag	ctacaggtcg	attctcggga	ctcacgtcca	ccggtgccat	60
gattactctg	gaagatggga	caaagatcgt	tacaaaaaca	ccggtatcag	tcgcacgaaa	120
gcttctcccc	gcctgttcg	actcatgaga	aagactatcc	gggcgtagaa	gttgctcgatc	180
tccgataata	aaaaccatct	tagtccgttt	cctctttgat	agaaagaggt	tattaacgaa	240
caacgaaaac	tatgaaccaa	acaacgaaaa	cactgtcgat	cattcttatc	ggtagctgac	300
cttccttgtc	ggggcaagcg	caaaactcaa	cgccccccct	tgtgggaccg	tgctggagga	360
ggtacctttc	tcccgaagaa	atcaaccttt	tcgcagacaa	cgtcagccct	tctttcaaaag	420
cctatatgga	attggcattc	accgaaggaa	accaaagcca	tgctcaccat	tccgaaatag	480
aagggatggg	gaccaaaacc	ggcagaatcg	aaagaaggaa	atcgactacc	gaatgcaacg	540
gtgacgatg						549

(2) INFORMATION FOR SEQ ID NO:713

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1631 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

aaggacgaac	cagatcacca	aaccggaaga	tttccgatca	ctactggcgt	atcggatgcc	60
tattttctatc	gaaagccttt	ctgaagacta	tcgggagcga	acgaatcgat	agcctccctc	120
attcgcacct	caggcagagg	ataagctccg	ggccactgta	tcttagcagc	tacctccacg	180
gtttttctct	gaaaggatgg	agtggagtta	ttttattatt	ctgcgtttta	tcattccctt	240
tgtgtctttt	gcccacgata	ctaaagagtt	atagattaga	aataaaaaga	cttagcttaa	300
cgttgtaagt	aagactatcg	atctgggaga	tggtcgttcc	atcagatcga	aaccggtaaa	360

ttggccaagc	aggccgatgg	cgccgtgaca	gtaccatggg	caatacggta	ttgctcgcta	420
cagtttgtgc	agccaaagac	gtaaccccg	ctgcgacttc	atgcctcttc	aggtggaata	480
caaagagaaa	actccgccat	cggacgcttc	cccggaggat	tcactcgccg	cgaaggcaag	540
cttcggatta	cgagatcctg	acctgcggcc	ttgtggatcg	tgcccttctc	cgctattccc	600
ggacaattat	catgcagagg	tattcgtaaa	tgtgatctct	tttcagccga	tggcgaggat	660
atgcccgcag	ccttgcccg	tctggcgctt	cgccggctct	tgccgtttcc	gatataccgt	720
tcaacggccc	tatcacgaag	tgcgcgtagc	acgtgtggac	ggccgctata	tcgtcaatcc	780
tacttcgagc	agctcgaacg	cgcagacatc	gacttgatgg	tcggagccac	aatgacaaca	840
tcattgatgg	cgaagggtgaa	atggacgagg	tacaggaatc	cgaatgctcg	aaggcatacg	900
cgtggcacac	gaagccatca	aggtacagt	caggcgcagc	tcgaactatc	cgaagctgta	960
ggaaaacttc	aaaagcgtga	tacagccatg	aagtaaacga	tgaagacctg	cgcaagaaag	1020
tgcacgacga	tgctatgctc	gtgcctatga	gggtggctacc	agcggaaaccg	gcaaacacag	1080
cgccggcgaag	cttttgaaaa	gatcgtggaa	gagttcaaa	ctcaataacg	gaagaagaac	1140
ttgccgagaa	ggccgaaatg	atagctcgct	actaccgcat	gtggaaaaag	aagcgatgcg	1200
tcgtgccatc	ctcgacgaag	gcaaagcctc	gatgggcgta	agaccacgga	gatccgtccg	1260
atatggatcg	agacgactgc	ctaccgggcc	cgcatggctc	agctatatcc	actcgtggtg	1320
agagcagtcg	cttacgaccg	ttacgcttgg	tacgaagagc	gacgaaaagc	tctggacgat	1380
gtactcaatt	atacgaagaa	gcgattcctg	ctgcactaca	attccctcct	ttctctacag	1440
gtgaagcccg	tcaccaacgc	gggtgtaggc	ccgcgagatc	ggtcattggc	atctggcgca	1500
tcgcgccttc	aagcgtatgt	accgacggac	taccctatg	tggtagctgt	aatcagcgac	1560
attctggatc	caatgggctc	gtccttcgat	ggccactggg	ctgcgcgggt	acttttgctc	1620
tgcgcgatg	c					1631

(2) INFORMATION FOR SEQ ID NO:714

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

tatcggacat	cctcaatata	acggccatgg	ccgtactgga	cagccacgct	gtctgatttg	60
attcaggtat	aaatccgtac	aacaaataga	ggctgtttac	tgcaaaaacg	agcctctatt	120
tttcccttgc	agctataaga	aagcctacgg	aagatgctaa	ggctaaaaag	caaagaggct	180
gctccgcacg	atttgcgagc	agcctctttg	tatttggggg	ttctatcttt	cggaagagtt	240
cccgaagtc	gccttttatt	gtccttaaat	ccgatggact	gactttactc	ggtagacatt	300
ctgcccgcct	gagtcgcggc	gcggttctgc	cggtctccaa	gagggcagg	tggcttccgt	360
cggaatgtag	atcacggtct	tgtcattcag	gcgcctgtct	tgacgccacc	catagatact	420
gaatgtattg	tgggcgtaaa	gcttg				445

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

gctcaagatg	cttgccatga	gcggtgagga	cggaggaatc	aagagtctgt	caatctcaac	60
atcgtaccgc	tctctttgag	ctatgagtat	gacccctgga	ttacctgaaa	gcgcgcgaga	120
tgctcagcaa	gcagcgcgac	ccgttattaa	gaaacccgtc	ggggaggatc	tgctgaatat	180
gcagacaggt	attttcgcta	caaaggacgt	gttcactttg	ccataggtag	acccctaaga	240
gaattgccga	gagcatcccg	gcagatgcgc	cgcattgccc	gcagttcaca	gaggaggcaa	300
actgatcgat	gcagaaatcc	atcgctcgta	ccgtctctat	ccggcaatta	tgtagcatgg	360
gatcttctgg	acggatgcga	ccacgccggg	tccattatag	caaggaggaa	aaagagacct	420
ttgtaaacta	tctgtccgca	caatcggcaa	agtggagatg	caggataagg	atgaagagga	480
attgaaacga	tggattctga	tcattgtatgc	caatccggca	aagggcata	tatgctg	537

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 492 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

ggaagggtta	ttgtgtaacg	gtctaataaa	aacgaaaaga	ttattgccgg	agagttgtgc	60
aacggaaaag	ccatgaatcc	gatagtcggg	attcatgggt	ttccggttaga	gtgaggagga	120
ttgttgtagc	cttagcaatt	cctttacatc	gtactgatga	ggctgccatc	tgctttgect	180
gccaaattctt	tggtggtact	cccattactt	tgcccatcat	tttactgtca	gtgacgccga	240
gacggtgatt	atttctctga	agatgggggt	cagttcctca	cgtgagagtt	gtttggtagg	300
taggcctcga	ttacctcggc	ttcggcaaaag	ctcagggttcg	gccgttcggg	tctgccgttt	360
tctacaaaga	tggcagcaat	ctcgcggcgc	tgttcaccat	cttttgcatg	atcttgaggg	420
ctgcattctt	ngacagagtg	catcgctgcc	tttagctgtc	ttggcttcga	gaaattcttt	480
cttcactccg	ga					492

(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2202 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

tgcgaaagga	agatcgagac	aatctttctg	catgaacgta	atccgattgc	caaattctcc	60
gaacgtgctt	tctgctcccc	tatcctcatc	atttccaaga	aagatcgaca	cccgtcacct	120
gcttgactga	agggatatgc	ctgcatattc	gatggctaaa	tcacccgttc	cggtagccac	180
atccagcact	gtatgtgagc	gaaaggctcg	atcatacgga	tagccttctg	ccgccatata	240
cgatcattcc	ccatgaaaag	aggtgattga	gacgatcgta	atgtccggcg	atatattgaa	300
catggcctct	acctgttcat	tcttggggca	tccggtgtca	taggggttat	tctttcagga	360
ctttgcatgg	cacatgattg	tccgacagtc	agcgactgct	aacgcagata	ctccgttatg	420
ttcttttcta	ttctttctgc	cgattgctca	ggctctgcctt	ttcgaagggc	ttacctacca	480
ctcgctcgta	aattctatgt	accgctccga	cacactgtcg	cagtatgctt	ccgtcatttc	540
ggatatttgc	ggccgggctt	gccctggaaa	ccgttctcga	tcagccacga	cgaacaaact	600
ccttgataaa	ctgcttctgg	gcttcgcccc	gttcgaacgc	tcctgatagc	cctcggcata	660
gaagtgcga	gaagagtcgg	gcgtattatc	tcgtcgatca	ggtagatctt	accgtccttc	720
ttgccgaatt	cgtattggta	tccaccaaaa	taagcccctt	ttcagcagcc	atttgagtac	780
cgcgctgaaa	agtgcgtaag	tatagcgctt	tatctgctcg	tagtctctt	tcgcaccagt	840
ccctgagcaa	tgatttctctg	acgagagata	ttctcatcgt	gacctcatcg	gccttggtcg	900
taggggtgat	aatgggatgt	tcgaaaacgt	gttttcgcgc	atgccctcgg	gaagaggcag	960
accgcaaagc	actcgctcgc	ggcagcatag	gcacgccatg	cacttcctgt	gatgtagccg	1020
cggatgacct	ctcgaccttg	aacggttcgc	aacggtgtcc	gatagtaacc	atcgggtcgg	1080
cgtagctatc	ttccagttcg	gaactatata	gcgagtggca	tcgaggtgtg	tgccgctatc	1140
tgattgagta	cctgaccctt	gtaagggata	ccggccgaag	gactacgtcg	aaagccgata	1200
tgcgatccgt	ggctatcatg	accagagatc	attctccaac	gtgtatacgt	cgcgcacctt	1260
gccgtgatat	acggtttctg	tcccggcagt	ctgaagtcgg	tacgagctaa	tgtttctttc	1320
atctgaattg	tatgctaagt	gattcgtaat	aatatcgata	tcgcctgatt	cttatggttt	1380
gcgcaacgac	agctgctggc	tccgctctct	ttttccgctt	gcctcgtacc	ggctcgtaggc	1440
atccaccaca	cgcgtggcga	gcggatggcg	actatatcag	cgcgttgga	tgcaatatag	1500
cctatccctc	tcgttccttg	aggatatcca	gagcctgacg	cagaccggag	tgcacacctc	1560
tggaagacg	gtctgcgtaa	tgctgcgggt	gacgatcatc	ttggcattgg	caccaagcgg	1620
gtcaggaaca	ttttcatctg	caactcggtc	gtattctgag	cttcgtcaga	atgaccacgg	1680
catcgttgag	cgtacgtcct	ctcatatagg	ccaatgtgct	atctggatga	tggttgtttc	1740
gatgtactct	tttagcttca	cggcgggata	atctcctcca	gcgcatcata	cagaggctgc	1800
aagtagggat	cgacttatct	ttcatctcac	cgggcagaaa	tcccagcttc	tcgcgggctt	1860
cccggcagga	cgtgagagaa	tgatacggcg	cacctgcttg	cttttcaagg	ccggacagcc	1920
agactgatgg	ctacgaaggt	cttgcccgtt	ccggcagggc	gatggcaaaa	acgaggctcat	1980
tggcctcgaa	agcctccaca	agtttctgcg	attatcacct	ctggcaatga	tgctcttgcc	2040
tcccgttcca	tgacggatag	atgttttaggg	acatcgtcag	cgggcagctt	ggcaccctgt	2100
gcaatgccag	gatcacatct	tcgggcagga	ggttgtaact	acggcaatac	gccacctcgg	2160
ctccagaact	tccaggaaac	gatccgtctc	gcgcgaatcg	cc		2202

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1029 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

catactttctc	tcgactatca	tctaatttct	gatatacata	tggcttattc	tttaaaaatc	60
tcgtctttga	agggggtggt	gtaaaggcat	tgcttatacg	gggccctcga	agtgctgcag	120
gaagaaaaga	ttttcccaa	aatcaaagag	tagccggcac	atcggccggt	gccatcatgg	180
ctgtgctcat	cggactgggt	atacaccgag	tgagatcaaa	gagataatgt	ggtgcctcaa	240
tttcagaatt	tcattggacga	ttcgtggggt	atcattcaag	atacgaaacg	gctgtcgaga	300
agttcgggtg	gtacaaaggc	gatttcttcc	gcaattggct	tgggacctga	tcaaggccaa	360
gaccggcaac	agcgaatcga	cctttgcgga	ttggctgcaa	tgaaggaga	aaacaaatct	420
ctcgacattt	ctctcatcgg	cccaatcttt	ctacaggctt	ctcagagatc	ttttcggcag	480
aacatacacc	cgcactctga	tagccgatgc	tgctcgtatc	tctatgtcca	ttccgctggt	540
ttcgtctgta	agcgcaactt	ccgaaacgat	gtatatgtgg	acggcggttg	ctgaacaact	600
atcccgtaaa	gggtgtttgat	cgtaccaagt	atgtaacaag	aactttacac	gaacgggcta	660
ctatgaacct	atcaataaga	agctgggaaa	cgccccagga	agattgccga	ttacgtatac	720
aacaaagaaa	cattggcttc	cgactcgaca	gcaaagagaa	gatagccttc	ttcagggaca	780
acgcgaacct	cctcatcgag	atatcgacag	cttctttgac	tataccgtgt	cgcattcggc	840
actctgctct	ctgctcaaga	cgatgtacac	ctgcacagt	atactggcaa	cgcaccattt	900
acatcgatac	gctgggagta	aagactacgg	atttgccatc	agcgatgccc	aaaaaaaaagc	960
tttgctggaa	tcgggcccgt	atacactcag	tcatatttgg	agtggtagaa	taacagcgaa	1020
gaaaaagtc						1029

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

ccgccggcaa	tgctttcttc	ccgtctttga	tttctcccgg	tacgggtata	gcgatgtcac	60
tcagtcgcaa	ggagtagacg	cttacttctc	tatcgccaac	cgccgatgat	gagcgtgatg	120
acagctcttg	tcctctcttt	cgtactcgcc	tgggtttggc	cgccatggaa	agccgtggca	180
tgaagggaat	gatgcagatt	ttcaggagat	tatcaccaag	ttgatcgcca	aggttattat	240
cccatgctgc	ccatctatat	cttcgggatc	tttctgaata	tgacccatca	gggcaagtgg	300
tgaagggtgt	gtccgtcttc	cttagtatca	tccggtatcat	tttggccttc	atatcatcct	360
gctgatcttc	caatactctg	tggcaggatt	caagccaaga	agaatccttt	cagaatgctg	420
tggcgaatgc	tgccggctta	ttcaccgctc	tccgtacgca	gtcttcggca	gccactattc	480
ccgtcacgct	aagagtg					497

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 953 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...953
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

ctgaccaatt	atattcgccc	tacggacttt	cgctcgatga	ctatttcata	accgcgagga	60
ttcgccacgc	gatgaatccg	gagactatga	tttcgaatgc	tctacgcttt	ggatctgccc	120
cttttcaata	aggatctgaa	gcagatgtcg	ccggtgaaga	agtgagcctg	cccacctatg	180
acttcgcaac	cgggataggg	tctacaaagg	aaataccata	cagctgaaag	acggagatat	240
cctgacctcg	aaggcattca	tgcgctgaat	ccggagctga	tacccggtgt	gcccaatcaa	300
gtacgtataa	gatctatgtg	agcgctctca	ctgcaatagg	attgatgctc	acaatcggat	360
ccccagtacg	gacaaccgac	tgatcaggcg	atgggtgcgcg	actatcgcta	tcgcaattac	420
tccggtctgg	ggacattgcg	tgttggcaga	gtgtccgacg	aggagaggaa	aaatgggtat	480
tcccgttcca	gagaatgcac	acgtcatgtt	caatagtgcc	atgctctacg	agttggctgt	540
ttgctgtgctt	acgcggagcc	gatcttacag	gcaatccctc	gtaacgaacg	gaatatgctg	600
aagcccgtag	actgctacgc	tttttgagca	gtttccgatg	ataccggcac	gtttgcttcc	660
gaacaactct	ctgatgcgtg	agttcccgga	ggaagcacat	tccactactg	atgccgaatc	720
agtcgtaaat	agcagaacaa	accgagactt	gggtaacatt	tgaagacgcc	ggctgagtca	780
tatccggcat	attttcagca	aaggaaacga	cgtaatcggg	ctatataacc	gactcaattc	840
tcaagaatac	gaactnagag	cgaaagcctt	tttggttcgt	aatttgtttg	gacccctga	900
tcgagtgttc	cgaatcggac	tcgtcgggaa	gagctttttt	tgctactttt	tgc	953

(2) INFORMATION FOR SEQ ID NO:721

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 333 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

actgcccgga	gccatgatcg	cccttcgaaa	gtgaagggcg	gttgccaagc	ggtaagaagc	60
tgatgaacaa	cctgcacctc	tgctccctcg	ccgtgagctg	ggcgatacgg	aaaccctcat	120
ccagcatccg	gccagcatga	cccactcccc	tacacacccg	aagagcgtgc	tgccagcgac	180
atatccgaag	gactggacgc	ctgtccgtgg	gtctggagaa	cgtggaggac	atcatcgccg	240
acctcagcac	ggtctggaca	gctgatctaa	acaccaaacg	tgataaggct	gacaaagaca	300
tatgaacccc	gaaagtcgcg	acgacttcgg	gtc			333

(2) INFORMATION FOR SEQ ID NO:722

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1444 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

agatgtcttc	caacgattat	ctgacggact	atgtgatgac	gatgctggc	gtctctccg	60
ctcttaccgc	tgacccggag	cataaggagt	ttcagccgtg	aagcgtatgg	ggtggaatgc	120
tctcgatgat	gctgcctcac	gactgatgat	agaatgaagg	aatacgaaaa	gaaanccaag	180
agtaagtaca	aaatacgccg	gaacgagcac	tcaactatct	ctatctgctt	acgatcgaca	240
gtcgcaccca	agctctctgt	gccatgctgc	ccgcgatgat	ttcctcgata	ttctggccga	300
tcccttccgc	atatttccat	tttggatatg	ccgcgagctg	ccacgtactc	cacggtgtag	360
ggcgtaaggc	actggccgat	gatttccctc	gtctatccgt	gagcatatca	tccgcacacc	420
ggatcagggg	gcgcactttg	cctgccttca	ggcggatatt	attggtgcga	ccgtcgctat	480
ggtatgcaga	ggaagcgatc	gaggccttcg	ctcgtatcgg	tacgtctcag	gacagctcta	540
tatcgaaggc	ttgcagatgt	ggctcctcaa	tcagaaaaga	actcagcttg	gccgagctctg	600
ccggcttctt	ccgatgcgat	atatgctctc	ttgttagtgc	aggaaaagat	cgaatggtag	660
aagccactgt	gtctgtccgg	gctccttacc	tgccttgctc	ggtacatttg	ccggtgcagg	720
cgaagtcgg	atcgtaagg	ggaagatcct	ccgcaaggca	aactaagtgc	agagcttgct	780
cgttcggaaa	aggatttgct	tgggcttcc	tcttggcgga	atacgatgcg	ccgcggcgga	840
tctcgtagct	acgggtaatg	gcttgctggg	agagaagcat	ctttctccga	gcaggtgata	900
gatggcaagc	taacgctcgt	acctctccga	ggggcgatcg	gctggaagtc	ggtaaaccgc	960
tctgtacgca	actgaccatt	cgctcgatcg	cgatatggac	ttcattgtcc	tgacggacaa	1020
gcgaacggcg	cggtggaacc	tatcggccaa	ctttcgggtt	atgattatgc	agccggaagt	1080
tctactacag	agaaataaag	gatagcagta	cgcgtttcta	tttcgatgtc	tggttaagagg	1140
atcctacaag	ctccaatact	ccaccgttgt	ggttcgtcgg	gagcttatgc	ctcaggtatc	1200
gctaccgtga	gcagtgccta	tgacggaggt	ttaccgggtc	taccgatggc	ggcagacagc	1260
tgcaaacagt	tccgtcgcaa	atactcaata	aactaaagaa	gcaaatgaac	caacaaccaa	1320
tcaaatcgcc	gtattcggac	tcgggtggagt	aggtggctac	tacggagcca	tgttgctctc	1380
cgcgagctg	cgaaggatgg	cctcctcgaa	gtttcttgga	tgcgcgcgga	gcacatttgg	1440
aagc						1444

(2) INFORMATION FOR SEQ ID NO:723

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1068 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

gttctggggac	ggaatggccg	atatggatgg	acatggagtg	tttacgaagt	gcttgacgat	60
cgcaatcgcg	ccggcaactt	tgtgctgaac	atggggtttca	tcaggatgca	tcaggccttt	120
tggcggtttta	cgacaaggct	ctttacgacg	cttcgctatt	ccggcgggca	tgactgtcgc	180
tgccgagctg	aagatcgacg	aggagtgtac	agcgggtcaag	taaagctgac	agagcgttcc	240
ggcagggtccg	tatcgatggc	gactatctga	tgggtacgga	taagtatcgg	ctcgtatgca	300
ggtggacggg	ctgaatttca	gtgccttcat	gccgaaggat	agttcgggtt	catgcaggca	360
gtgcttcatg	ccgaaggggc	tggattcgat	ctttcaataa	acgtactgtc	tccaccatac	420
acacatcggt	caaacacatc	cttggaaga	acgagatttg	gacagtatca	ctttcgatgc	480
ggcattgaac	aaggagtgtt	cttcgcttca	ttcaatagca	ccaactcctt	cctgaacgga	540
gtatgcaatt	ggatgccctc	cttggcaaaa	acaaactgga	cggctctgga	tgggtcggat	600
ggattcggcg	gatttcaatg	cattgggctt	tgcagaccca	cttttgcggc	agcttttgtc	660
cttgaggggtc	atgtgaaaag	cgatttgctc	agacacatcg	gttcgaagcc	tcggtacgcg	720
attgttacat	gcagccgaac	gctataaagt	aataccggag	cgaatagata	tattagccga	780
taccatcccg	atagcatccg	tctggatctc	gtgtcgggcg	acttgaaaat	ggcctcagag	840
tgggagaagg	catagatgcc	gttacgggtc	tgtcccaatc	tccgggaaga	agatagagat	900
attccgcaac	gactctattc	agcgtctcgc	atctcttcga	tttttcaaga	gctgcctcat	960
gcgaccttta	ccttgcaagc	cgatcgctac	aatccgctcc	acgacttgat	gggaagtaaa	1020
cggtatgaat	acaactccat	ccgtggcaag	ctggacagtt	tcgcccga		1068

(2) INFORMATION FOR SEQ ID NO:724

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

actctagagg	atccccgatt	ccatttccct	caacaaccag	aacatatgtc	ccggagcctg	60
agaatacaca	tccatactga	agacactcgt	ccctgctata	attccttggg	cattgcagcg	120
acttcttctc	ctgcgggtgtt	ataaagctta	tccgatatgt	gccggcaata	ttcaaactta	180
ccgaaacagc	cagttcgaac	gaccggcggt	gaaccatgca	cgaagagctt	tggcagctcc	240
ggtcaagtac	atgtattggg	ttcgttcata	cacgtaaaact	tgaagagatc	aggtcgccga	300
taaagggata	agtcctcttt	cgaaccacta	ttgtcagcgg	caggatatag	tattctacct	360
tatcattctt	gttaagacct	gtaaagctat	aatatagtga	cctgttgatt	ccatcgatcat	420
atcagcagcc	ttaaagctac	cgaaccattg	atacgatagt	aacattgtac	cggcgagata	480
gtagcattgg	gcatgagacg	acatctgctt	cgatcttata	atcagggcct	gcctgttcgc	540
cagtatcggg	tagtgcttga	tatagagata	gcccttatcc	gctacctctg	agta	594

(2) INFORMATION FOR SEQ ID NO:725

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1274 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

ttgaagatta	tccggttatt	gtaatgagca	catctcaaca	ccacgagctt	aaatcggggtc	60
aatatgcccc	tccaaaacga	aagaactctc	gccttggtcta	tccacatccc	aagaacttcc	120
ttatagccct	gtcgttaagt	cctacgctag	ataaacggtt	ttcttgatta	tcttgccctga	180
ttctcttact	ttgaattaga	caaccatata	acgcctgtca	agaggagaat	tttgccattc	240
aaggagatt	ggattacttt	attagtaata	atggatatgg	cactcgtaga	aagggttattt	300
cgtatatatc	acaaaactta	tcttctatat	ctgatataatc	tgaacgctca	tttgtttgac	360
atagagttag	attacatgct	tttcaatata	aattttccaac	tgttcatctt	cgccatgtac	420
aggatgctat	cctcctcgga	tactacggga	gctccgttgc	catatcgggt	tttcagaggc	480
tatacctcat	gccttttaggc	tctcgcactt	aggcaatccc	catttagctt	gcataatctt	540
tagtgcgaca	aactgtcgga	tgcgacgttc	gaccttttgt	tcaatccgca	gactacaccg	600
gaaagtacta	cggagtggtcg	tttgtaattg	cctcccgcac	ggctcattta	acagcctctg	660
gactatcggt	caaccaattc	aggcttatcc	ttgtgcttgt	ctttctacct	cgtcattcag	720
tcgccacttg	gcaatagtgg	acttatgcct	ttactgacat	gctacactcc	cattgggttt	780
ccccttggtat	aagtgggtga	tagtaggtta	cttcaaagaa	cacgaaccta	atcatagcta	840
aggagatatt	tattgtgctg	ccttatgggt	gctctttcca	aaatgatttc	aggtttattg	900
tcgtaaaaac	agtatgccac	tatagctgag	acggattcat	gatgaagtta	ttgattgatc	960
gatgtcttga	gtgtacaagt	tgccggtggt	tttcagcata	tcattgatgc	attctatgat	1020
gtatcttttt	caacatgatt	ctgtcacacg	agggcataag	tttgttcttc	atatttgctt	1080
gattccggtt	acaagatgga	tgccgtcatc	aaagaggctt	tcaaagattt	aggcgagaat	1140
atcccttatc	tgcaaagagt	tttccgtata	gttcttagcc	ggaacctgcc	aaaccttcgg	1200
gtttctgnca	tccacgttag	caccttaaga	caaaacgtaa	taaactcttt	acgatcattg	1260
catacgaat	caag					1274

(2) INFORMATION FOR SEQ ID NO:726

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1057 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

cgctctactc	aaagctactt	atctgcttgc	cgccggcaac	ctctaccgct	gacctataaa	60
atatatcccc	atgggtgtgt	gaaatgtgaa	aggtgcaatc	tcttcgacag	atatggagac	120
cgacgaatac	gaatggtccg	aagctgccga	accgctacat	tctcccccg	cagagaagct	180
ctgcgcaagg	aagctttatc	ctcgaagtgc	ctcgtatagg	tgtacgcttc	cgcttccctg	240
cggagtgaat	gaggtagcat	acttcggaag	agggccggat	gagaactata	tcgacgcaac	300
tacggggcga	ctgtcgttct	gtacaccact	gctgccgata	agagtactac	aactatgtgc	360
gtccgcgaaga	gaacgggcac	cgtaccgata	cggttggtcg	atgctgcacg	gacgaggctt	420
gggctttggc	atagtagccg	agaaacgac	ggcttcaatg	ctcttcgaca	agctgtcgag	480
gacttcgact	agaagaagcc	aagcacagac	cctaccagt	gaacaactat	tcacagacca	540
gatacaaaac	cgagatgaga	gcaaagctcg	caacgtcctc	cgtcggcaca	tcattgtcaat	600

gatgtgcctg	tgcgcgactt	cgtagaggtg	tgcgtggtat	gaaacaacaa	ggagtaggag	660
gatacgatag	ctggctcggc	cttcccaacc	ttggcaccgc	ctaccgtcca	atcggaata	720
cagttggggc	tttaccttct	tccggtacga	tcagtcggcc	aaatggccac	tgccacccga	780
tacgactact	aagcacaggg	cgatagatgt	ggcaaacacc	atgaggtgcc	aacacactca	840
tatatcttat	acggataaaa	tacagcataa	cgcatgaagc	aatgaatgaa	atagtagcac	900
atttccacac	cgagggaagc	gtggcagaga	tgcaccctta	ggtgccggtc	ttatcaatga	960
cacttacaag	gtggcaacag	cgaagccgat	gcacctgact	acgttttgca	acgaatcaat	1020
cacaccatat	caaagatgtg	gaaatgctac	aggccaa			1057

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1794 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1794

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

gagactgtcc	gccgaatcaa	acggatcagt	cgtagagatag	caaaagctcg	aaaatatcag	60
gccccttcaa	tatccagttc	cttgccaagg	gtaacgattt	aaggtgatcg	agtgcattt	120
gcgtgcttcg	cgcagcttcc	ccttcgtagc	aaggtgctca	agatcaactt	tatcgaattg	180
gccacacgta	tcatgcgggc	ctgccggtag	agaagccgaa	caagagcgag	ttcgatctgg	240
actattcggt	atcaaggcct	cgcagttctc	cttcaccgcg	ttgcaaaagg	ccgacctgtc	300
ttgggtgtgg	atatgaccag	taccggagag	gtaggctgta	tagggatgat	acggacgagg	360
ctgtactgaa	gagtatgctt	tcggtaggct	atgcattcct	cagaagagtg	tactcttctc	420
taccggaggc	tataagcaaa	agtggatatg	cttgatgcta	cgaccatgct	tycagccaaa	480
gggtataaga	ctatgccacg	gagggaacgc	acaattttct	cagagagaac	ggaatcgaac	540
gaccaaagtg	ttctggccga	gcgagaacgg	acagcctcaa	gctctggatt	gcttcacaat	600
cgtagagatc	agcttgtgtg	caatatcaac	aagaatctac	cgcaggagaa	ctgaccaatg	660
gttataaaact	ccgccgtgca	gccatcacct	gaatatcccg	ctggttacia	atgctcgttt	720
ggcttctgcc	ttcatacggc	attctgcaaa	catagccctg	aggatattcg	catcaagagt	780
tgggtgaata	caagtagtcg	ctttttcttg	ttgagagtgt	cgattgtaaa	ttcagagagc	840
ctctgtaaat	ccggtcataa	ggccgacgca	cttgacgcat	tccttctctc	tctcctcact	900
tcocatggagg	aaaaaagacg	gaggcagtgt	cttagtattt	ggacactgcc	tctgtctttt	960
ccgagccgat	accctccaaa	gatcaatccg	tttcgaactt	ggctatttct	tctaaccaga	1020
gcgcactgcg	gcatcgctgg	ccatacgcca	tgctccgcgg	ggcgacagac	tgatgcagtt	1080
acttttggcc	catccggcat	acaattacgt	ttgtactgct	gagcgaaaaa	cgacggaaga	1140
ataccatcat	ccatttcttg	atctccgcct	tggtatgatc	cccttgaaa	ctacaccggc	1200
gaggtagtag	atcttcgagg	gcttgattca	ttgtggagga	aatggtagat	gaagaagtcg	1260
tgcaattcgt	atggccgacc	agatcttccg	tcttctggct	gatatttcca	tcctgtccca	1320
cagcttgagt	tcgggactga	tgggagtacg	gacgatgtcc	agcaaaacag	ccaagctgcc	1380
tcatccagcc	agccgctatg	cgctatatga	tcgacgagaa	ttgtaccgta	gtcttggcta	1440
tccctgcatt	gacggcatac	atggacatat	atcgccaftg	tacgttacct	atccgagagc	1500
cagttcggac	agatcacccct	acctataact	ggagcgttgt	atatattggc	cagattcatc	1560
agtatttggg	tcgctcgcga	gcttgcgat	tctcgaaggt	cgtatcctgc	acctccgatt	1620
atgtcctatg	gcttcgaagt	gtcggagaca	agcctccttg	atgtcttctc	tttgatcgtc	1680
acggcgatgg	cctccatcag	agcaaaaggc	ttccgtaagt	acgatcgga	gttccgaacc	1740
ccggcatcgt	aacggcaatg	atgtcttacg	gggcaaatcc	agccggtcga	atgc	1794

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...566
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

gaagtgccgg	gtacggagcc	gcgcgactgt	ggcaactgcc	tgctgcacac	ctgccgatgg	60
ccaaatatga	ggccgagaaa	tacctgcgtg	aggtactcat	gtagcgacgg	aggagaacct	120
gaactatccc	gactgacaac	tgccgggtgt	gcatggggct	tacagtcgcg	tctattttct	180
acgtctgcat	ctctaccctc	atgtcttctg	caatgacata	ggcaggacaa	tgcattttca	240
gccacaacgt	acatctaaag	ctcatgattg	ctacattcaa	ttttcaaaac	aagtcgaatc	300
catatgtcag	agattcaaat	catagaggaa	agagactaaa	aatttcaaac	gcgatcgccc	360
tgacaggctg	cccccggggc	cgatgcatta	aatggttttg	cggcttcatt	cgagcaaatt	420
tctcctcatt	ggtattattg	gtgctattgt	gtgccgatgg	cagccggatg	gattattgga	480
gccggaggcg	tatcggtctg	tatggacgca	atgtgaatca	gacggcacag	cgtggcgcaa	540
aggtgcatac	acggggagca	aggcga				566

(2) INFORMATION FOR SEQ ID NO:729

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 445 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

ggcaaagtcg	cacgtggcag	taatccaaat	gggcatatgc	ttataattga	tttgtgtata	60
tcgttgagcg	tcagcaaattg	ctcgtccgac	catccggcgg	accgccatga	ccagcataat	120
taagcaggat	aatacccgac	tgaagggttc	cagcatcttt	ttctttgcac	ccggaatgct	180
gtgcaaccgg	ttctcgtgac	atgcggatat	acgtcctgaa	aggcgcgtac	cggcatgatg	240
gcagggcata	acgcttgacg	gtatcgatca	aacgggaagt	ctcggttgcy	tgctgtcccc	300
gttgtctgcc	gcaaaacagg	cacgaatacg	ccaggcacca	ctcctcgatc	ctcctcatat	360
cggatggtct	tgtccactgc	gatgcgagct	tcgccggagt	acgtacgggg	aatcgcccta	420
cagccatatt	ataatgcgcc	accga				445

(2) INFORMATION FOR SEQ ID NO:730

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 525 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...525
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:730

ctcggtcgcg	ctcctgtggc	caacctgtgt	ggcatccgcg	gtgctgtatg	tcggaatggc	60
tgatgaacgg	gctgttcgga	ttcggaaacgc	tcttctcttt	ttctgcgttt	tttcgctatc	120
gctcaagctt	atgggtgtcg	tcaaacgata	tctgtcgtga	aacggctgat	attctgcggt	180
gtgatgacct	tttgagagc	cttgacgctg	cattcatcta	caaactttca	ggtctcgaag	240
gttttttcgt	tggggcggtg	tgcacgggtc	agaatggaca	ctgtttctcg	aacgaatata	300
ggtaaggccg	gactgatcat	agttctgctc	gtccttgccg	tcacatagcg	gtagtgggtac	360
gcagcgaatg	tatgggtttc	ttccgccgtt	tgtgggacta	agctggatct	ctattcccaa	420
actgccgaag	aaagagagga	aaataatcat	gacgagtccg	aaaacgagtc	gctcggcaat	480
ggctacgaca	gggtgaaagc	gagaatctct	ccggctatct	caaca		525

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 492 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

cgcgaaatcgg	agggttaagat	gcaggagtcc	atcaaccacg	ctgagggagg	gagcaggcca	60
agattctcag	agccaaagct	gaggcagagg	ctaagatatg	gtggccaagg	cagaggccga	120
agctatccgc	cagatcagcg	aagcagtgcc	ggtagtgggtg	ccaatccgac	ccaatacctc	180
attgccatgc	agtatacgaa	acgctcaagg	acatcaacaa	gggcgatcag	accaagaccg	240
tttactcccg	ttcgaggcta	ccggtatgct	cggtgccttg	ggcggtatga	aggattgggtg	300
aaaggatgag	actctctgcc	attcttatcg	ctttgattgt	gatctgcctg	ctgtgcttag	360
cgggcagcat	tattattcca	tggcgggaga	gcactggaga	cggacagcat	tcgtccgaac	420
gaactctcgg	catcgatccg	agtgcgcttt	tctttcggaa	caatgaatac	caatgcacgt	480
tcgggtcaaaa	gt					492

(2) INFORMATION FOR SEQ ID NO:732

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5520 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5520

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

gctgctgtcc	gcacaccggc	aatgatgatt	ttgtgcataa	agatttcttc	cgcaggcctg	60
cagcaaggag	tctaccgcgg	gagattatca	aatgaataaa	gtgactgttt	gttgtgcaaa	120
ggtctcaaaa	agggaaaatg	gctcgtaaaa	ccggtgcttg	tggtactgaa	aaacgtggcg	180
cgagaatttt	ttcgtttgg	tcgggaatga	aaaaaatctc	gcgccaaaag	gaaaaagttt	240
tggcagtgtt	ttcagaaact	gtggttcggc	gattcgagta	tttgccggctc	gtgttttcac	300
gtttggggaa	tcgcatcag	gagccaaagg	gaattgaaag	gaaggaactg	gcttttagttt	360
cgtatttttg	cacggatatg	ggacgaatac	tgctatcgac	tacggacgca	aaaggacggg	420
acttgccgtc	accgaccac	taaaatcatt	ccgggcggac	tgaccactgt	acctacccat	480
acgctgctgg	cttcctgcgg	gactacgtca	gccgggagcc	ggtggagcgt	ttcgtgctgg	540
actgccacgc	cggatgaact	acgaagagtc	cgaatcgatg	acctatatcg	ccccttcgcc	600
gttaaaacttg	cccaagcctt	cccctctata	cctataagta	cgtggacgaa	cgcttcacct	660
cgcgcattgg	acagaggact	attctgaagc	cgggataggg	aagatgaaac	ggcgagacaa	720
ggctctgggtg	gatgagtcag	tgcggtcatc	atcctacagt	cgtatctgga	caatcccgac	780
agatagcgag	acggcttatt	ccccctgctt	cgagacgggg	acggcatttt	ccaccaaaaag	840
acaagagaaa	agacaatcac	aagaacacaa	atactattcg	atgaacaatg	ctccttccta	900
tctacctata	cggacatccg	gtgctgagaa	agtagcagaa	gatataactc	cggactatcc	960
caaactgaaa	gagctgatag	caacatgacg	gagagcatgt	accactccga	cggcattggc	1020
ctggcagctc	tcaaaataggc	ttacccatca	gggtactcgt	gatcgatgcc	gatccgctaa	1080
agaggattat	cccgaatgtg	ccggattcaa	gcgcgtgatg	atcaacgcca	tatcgaagag	1140
cgaggcgaag	atctctgcac	cgaatacgaa	ggttgctcag	ccttcgggcc	atacacgaga	1200
aggtggaacg	ccccacctcc	atccgattcg	ctatgtggac	gaggactttc	agccgcacga	1260
agaggtgctc	caggctttgc	ggcaagagtg	gtacagcacg	aatacgacca	tatcgacggg	1320
aagtcttcat	cgaccacatc	agtcggatc	gcaagcagct	gatcaaaagg	aactgcagaa	1380
tatcatcaaa	ggcaaaagta	ggacttcgta	ccgcgtagtg	aagctccgac	cggcaaaaaa	1440
cggtaagccg	tagtcaaatc	catttctccc	ggctctgatt	atgacattca	aacgctcctt	1500
attcttcctc	ctgctcctgt	ctccgtggcc	acagctcggg	cgagataga	cgctgatcgg	1560
gtgatcacat	cgggcgcaat	gctctctact	tcaacgacta	cgtggtgagc	atcgggtcct	1620
caaccaagtg	gtaggcctgc	gcccgtggat	ggcggaaacct	tatttcacgc	gggaatagcc	1680
aaaatcagtc	tggaagacta	tacaggggcg	gaagcgatgc	ttcggcctgc	ctgcagcgca	1740
atgcgctcat	ccccaaagca	tatctcttcg	ggcgtggcca	cggcagaatc	tgggcaaaat	1800
cgattcagcc	attaggacta	ccgtcgcgga	ttggagctga	tgccgaacga	tgagggcatg	1860
ctgtgaatct	gaccggagtg	ctcaccgaca	gcaaacgcta	tgccgaagca	cgggaaggggt	1920
agccgaactg	ctcaaattct	accccaaaaag	caagcaagca	atatagctct	cagcgcgata	1980
gagctggggcg	agcaggatac	cgtcgcagca	ttcgcgaact	gaacgaggta	cttcggatgg	2040
actctctctt	tgctcctgct	attcgcagat	ggccatgctg	cacctcaaga	gcaagcgcaa	2100
cgcagagcta	tggcagccct	ggacaaaagca	atagaattgg	agccgagcga	actgtcaact	2160
atatcaaccg	cgggtgtcatc	cgctaccaat	cgaacgactt	gcgtgagcca	tggaacgacta	2220
cagccacgctc	ggttcgcaaa	agccgaacga	caagtggcac	gtttcaaccg	tgcccttgctc	2280
cgctcttacc	tcggtgacgt	gaaaatgcc	tcgaggactt	cgatgtagtc	atccgtctgg	2340
agccggagaa	cttcatgcac	tctacaaccg	tgccatcctc	ctcacgcaga	tcaacgagaa	2400
cgaaaagcca	ttaccgactt	cgacaaaagt	ctgggacact	atcctgactt	gtcgctcggct	2460
actatgctcg	ctcccaagcc	aaaaaggcat	tgggcgacat	cgcggagccg	aacgggacta	2520
ctggcgcgct	ttcgacatag	aaaaagcgca	cagagcaaga	caaaaaaac	gaaaaaaagc	2580
agctcttcga	cttcgacaaa	gagacacgtg	aggatagcga	cgaaacgata	gagaagttca	2640
acctgccgtc	gtatccgaga	aatcctccga	gaagcgcaca	cgctactcca	gtcggtagct	2700
gggcggattc	aggacaacga	tgtagaggta	cagccctcgc	cgttttcgtc	ctcagctact	2760
acgagcagtc	ctcttcgcaa	gaggtgccgc	gcgctactac	tccgaagcca	ttgctcgctt	2820
caacgacaaa	aaggttctgc	ccagcgactc	aaaccgatca	accgtgaggt	agctctgagt	2880

caagagcagg	tgcatatcac	gaacaggaca	taacggaaat	atccgagagg	actgccggca	2940
tgcatatctg	tgcttccgtc	gcgcttttga	ctatatgctg	atacagaatt	ggagcaggcc	3000
atcgctcgatt	tcgatcaggc	tgtagagctg	aacaagcatt	tgccctcgca	tacttcggaa	3060
gagccattgc	acgtgccaa	ctggctgggc	ccgtcaggga	gcctccttta	tccaccaaga	3120
ggccgaaacg	gtgaatccat	gacaaaagct	ctgatcacga	caccgcgaac	caatgcaatg	3180
ggagtccggc	ggctgccgaa	tcccccgagc	gtaagcctgc	catatcggat	gtggcgggtga	3240
gctgggtgatg	cgcgacctga	accgcacgat	cgagctggat	ccgattttgc	ctatgcctac	3300
tacaatcgtg	ccgtgctact	ggccagacga	gggatacggg	tgctgccctg	tcggactacg	3360
accgtgccat	caaagcctat	cggagtttgc	cgatgcctat	ttcaatcgcg	gcctgctgtt	3420
gctttcgcgc	gaaaggccaa	agaaggcatc	gccgatctga	gtcggggcagg	cgaatacggc	3480
tctacaaggc	gtacaacatc	atcaaacgaa	tgagcacgaa	gtcatgattc	cgtcaataac	3540
ctgactgtcg	atttcggcac	ccgtctgctc	ttcgatcggg	atcattcgtc	atcaacaggc	3600
cgacaccgat	cgctcttgta	gggaagacgg	tgccggcaag	agtacgctgc	tcaagctgat	3660
tgccggcatg	gaagaccgac	atccggacac	atagcacgcc	ccaaggggat	ccgcataggc	3720
tatcgccgca	ggtgatgcgt	ttgcaggacg	gacacacggt	ttacgaagag	gtcagcaggc	3780
tttcaacgat	attcgccaaa	tagaggaaga	gatacggcgt	cttccgatga	aatggccgga	3840
cgtacggact	acgaatcgga	tgactatatc	cactgataga	gcattatacg	aatatgagcg	3900
agaccctctc	tctcatgcag	agggcaacta	tcatgctgcg	atcgaacaga	cattgatcgg	3960
tctgggcttg	gccgagagga	cttccaccgc	cccacagccg	atthtcagcg	aggatggcta	4020
tgccgtagata	cttgcccaaa	cttctgctcc	aacgccccga	agttttgtgc	tcgacgagcc	4080
gaccaatcac	ctcgacatcg	aatccatcgg	ctggctgagc	agttcatcgc	caccaatgca	4140
ggagccgtta	tccgtgtgtc	gcacgcaggg	cattcatcga	caataccacg	acacgcacta	4200
tcgaaataga	actggacata	tatacgacta	caagaccaac	tacagccact	atgtggagct	4260
gcggaagagc	ggctgcgaca	gcagatgcgt	gcctacgaga	atcagcagaa	gagatccgcg	4320
atacggagga	cttcatcgaa	cgattcagat	acaaggccac	gagtccgtac	aggtagacag	4380
ccggatcaaaa	cagttgggaa	aagtagagcg	atggagatag	acgagcggga	tcgttcggca	4440
tttcaacttcc	gcttttatccg	gcacagcctt	ccggcagtta	tccgctaata	gtggatgatt	4500
tggccaaagct	tatggcgatc	accaggtgtt	ttccggagct	acatacacca	tcgaaagggc	4560
gaaaagggtgg	ctttcgtagg	caaaaaacgg	gccggcaaaa	gtaccaggtc	aagtgtatca	4620
tgggagagct	gacagactac	accggcaagc	tcgaatgggg	cacaacgtgc	agctgggcta	4680
ctttgccccaa	aacgaagccc	aagactaaga	gggatctcca	cggtattcga	cacgatagac	4740
cgtgaggccg	tggcgacatc	cgtctgcgcc	tgaacgattt	gctcggggct	ttctctctcg	4800
ggcggaagca	tcggaaaaga	aagtaagtgt	cctgagtggg	ggagaacgag	ccgattggct	4860
attatcaggc	ttttgctaca	gccggctaac	ttccttatte	cgatgagccg	accaatcacc	4920
tcgatatgcg	ctcgaaggat	gtactgaaaa	ggcgatcaag	aacttcgatg	ggactgtcat	4980
cgtagtatct	cacgaccgga	gttctctcat	gggcttgcta	gcaagggtga	tgaattttgca	5040
gatggacggg	gaacgaacac	ctcggaggta	tatacgacta	tctccggacc	cgccgttgca	5100
gacgctgaca	gagctggagc	gaaccactac	gatcgaaaca	aaaacacacg	ggaggctata	5160
cctgaaacgg	aagccaaagc	ggactaccgt	cggcaaaagg	ggtagccaaa	cagctgcgca	5220
cgttggagcg	aaccgtagca	accgcgagga	gcggatcgga	aaattggagt	cgggaattaca	5280
ggcaatagag	atctactgca	agatccgaaa	catgcgactg	acgcgaatct	gttcgagcga	5340
tcgccggcat	gaaacaagaa	ctcgaaaagg	ccatggagga	ctgggaacag	cttccgaagc	5400
tttatccgaa	gcccaaggat	aagctcaacc	tccccctctc	ttctctctct	ctttaccaag	5460
agaccatctc	accaccaatc	tattagaact	gagacaacct	ttcgccatcc	gtccgaaagc	

(2) INFORMATION FOR SEQ ID NO:733

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1037 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1037

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

cgcgaaaatt	ttttcgttgt	ggcgcgagaa	gtaaaaat	ttggaaccaa	acgaaaaatt	60
tctcgcgct	gttttcgcca	aaacacgcac	cgcaatccac	cgtttttggc	tcgtaatctt	120
ccgacagtag	gaagctcttt	tcacggtcgc	tgtagctcct	tgtgagaaaa	taaagatatg	180
cccgaagg	aaataaat	ggatttatta	ccggttacgg	cgcggaatac	tctcttctct	240
ttatttcttt	gccggaagcc	tgaccttttt	tatccttgca	ggcaatccta	atgagaagat	300
actaccacac	gttaccaacg	aaacggctcc	cttgcgctact	gtctactggg	gttgccggat	360
tcgaccggcg	gagcacctgc	tctcgccgac	actacgatgc	caagagttat	gaatccgtgt	420
tacggggcac	ttatccttcg	gcgaggatat	caagatagaa	atggatgccg	tactcgatgt	480
actggtgct	atggcataga	ggtgctccgt	cccagccga	tagcaaaacta	caaccagatt	540
ttgcccgcga	tgtggctttt	gccatcgatg	acaaactctt	cgtatcgacc	tgatagccga	600
tcgtgcccgc	gagtcggaag	ccttttcgcc	catttggtat	gtgtcggaga	gagccatctg	660
gtacgcctta	gcgaagatat	tcatgcgaag	gcggagacat	cctgttatat	gacgatattc	720
ttttcatagg	cacctccttc	agaaggatta	tccttccttc	aagacggccc	gaaccaatgc	780
acggctgtag	acttcttccg	cgaatttttc	ccacacaaga	ccatcatacc	gatgagctga	840
tcaagcacga	caccgatccc	atgcgctcgg	tgctccacct	cgctgcgctt	tccaaccctg	900
aggccgcagc	cgcgccatag	tctaccgcca	agattcctgc	actctgagag	cttcggcctg	960
atcacagaga	tatcggtggc	gggacaacct	gttcgagatt	acacccgagg	aagctatatg	1020
atgaatacca	tatatctc					1037

(2) INFORMATION FOR SEQ ID NO:734

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

ggatacgtcc	ggagaagggtg	gcagcagtg	taagcagggc	agctccgatt	attcacctcg	60
aaacggaacg	agggtgcccc	cctgtgggtg	caccctcggt	gtacaggccg	gactgatccg	120
gcttagagaa	ttgtctccag	ttgatcggt	tcggatctac	tgcccgtata	atcccatgtg	180
cgtccaccag	gtaacttgga	aacggatctt	caagccatag	atgttgagca	tttgatcgcg	240
tttacatttt	ccaccagtcg	ctgggcagac	aagtctat	ggtcgaaagc	caagtatttg	300
tgaataccga	caggtttttg	tccatcgaaa	cacctacata	ccgacccgac	tgctcgggtct	360
tttggcaaaa	taacgagacc	atcggaacatt	acggccctgc	tctctccatc	gtatgccgcc	420
cagaagtggg	tcagcgtgta	caagcagcct	ctgggctg	gtccgattgt	acgaccaaag	480
actttacctc	ggcaccgctg	cccctactgc	caagccatct	atggcttcg	atggagaggg	540
gccgagctac	ccgacaaaag	caaggcagcc	gcgaccaatg	agc		583

(2) INFORMATION FOR SEQ ID NO:735

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

```
gcacggctgc acgaagggct tccctatccg attctttttt gatggccggg tccatttgat      60
cctgttgcca agtctgccgt agtcgggtatc gctgaaccca aatgggtgtac acagacttcc      120
gacgtgattc gcttttgtgc tgtggggtat cgttgccgaa gagactcagt tctttctctg      180
tcgatagatg caggattgca gacgggcatt catcctctcg gccagctcca ccgcttctgc      240
cgatggcggg aacaagcctc ttcactacgg atgagaggat ggaaatgtat gtccaatcat      300
tcccgtattt ggctttgtag tgctctttgt tggctcggat gattcctctt tttcacagtg      360
cgtggcgatg agcaggtcgc attctcggaa tatttctcca gcgtttcctt attgtccaca      420
agcatattgc cggtagatga acgaggaata gcttcagacc gggtagcaga tgcttgacca      480
cccgtttgat tcatcgatgt tgtcattcgt gccaccgaag aagaagccgt agttggccct      540
gccgtgtctg caccgatctg ccttttctcc agcagtcgct cccacatttg gtaggaggat      600
tcgtattggg catatccata aacgaagtga ctccgncgct actgctgccc ggctttcaga      660
ggcgatggta gctttgtgcg tcagtcgggc tcgcggaaat gaacttggtc gtctatacat      720
ccggggaata gcctcgaccg ctacactcta tgacttcacg ggcgagaga ttgtcatccg      780
cgggagctct ccttcgataa tacgggagat aaatgcgcca tcaatcatca ccgaccggg      840
aagggttttt cctcgttggg gataagtgcg ttgcgaagaa gattttcatc tctttcgtac      900
tattttcttt tgggaaatcc tttgaataag tccagtagcg tagcttgatc acgcccgtaa      960
aagcttcacc gaaaatagaa tgttcatttt cgacgttccc aaaacacgat tgacgaaagt     1020
gatgggtatt ctttcaggcg aaatccgaga caataggccg tgtatttcat ctcgatttga     1080
aagcgtagcc cttgaaatgt accgaatcaa gatcaatggg ttcaagactt cgcggcggta     1140
gcaaacaaat ccggcagtcg tgcgcgatat attcataagg tcacgagacg cacatatacg     1200
gatgcgtagt agctcatcca tacgcacttt taggccagtc cttgacgcct ccgcccgata     1260
catagcgcg ggcgtcgcta catcggcttc tctccggcg caggcattgt atagatcgat     1320
caattgtcta ccgggtggct gaaatcgag tccatctcga atatatagtc atccctcgcg     1380
cgatgctcca tttgaatccg g                                     1401
```

(2) INFORMATION FOR SEQ ID NO:736

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 768 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...768

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

```
ggacgatccc tcttccctgt gnaattgaga aaccgtacac ggctaccgag gtgatattat      60
ttgtactcat tgtttctaaat aagtgggtatt cataatttta ctccacaaaa atacaaaaga     120
acgagcgggt tatcaaaagg ataaaaaaaag gtgtgcaaaa atcgcctaata tgcgatttctg     180
acacaccctc tttccaaatc gatttaatta ttgtcttttcg ctaaccgctg aatcagctca     240
gtttgggatg attagaccgg aacgaagttt cggctcgaac caagtagtct tgggggcatg     300
atattgcccc aatcagcaat gtccatcagc tgtttcatcg ataeggataa agagcgagag     360
caacacgcat ttcgccactg tctacacgct tttcagttct cccagtcgcg gaataccacc     420
```


cacgaagtcg	atacgcttgt	cgagcggaga	tctttgatgc	ctaagatctc	atccagaatc	480
agattcgaag	gacgtaaca	tccagtacac	cgataggatc	gttgatcatca	taggtgccgc	540
ttttgctgtc	agcgaatacc	at ttgccacc	gagatagaga	gagaagtttg	cagcttggag	600
ggcgatatt	cttccgtccc	tttgattct	acttcgagtg	tcgagacagt	ttctgcaaga	660
attcttcac	actcaagcca	ttcagacttt	cactacccgg	ttatagtcga	tgattgtgag	720
ctgatcggca	gggaacatac	agccatgaag	tagttggact	cttcatcg		768

(2) INFORMATION FOR SEQ ID NO:737

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

gcatcgttgt	ccacggaggc	gggccattga	caggaacaaa	taccctgttt	tcagaatcag	60
agagttcgtg	tacggttgtt	cattggtggc	caaagcgcat	atacctcgta	cttcgttccc	120
catgcgcagg	tctgtgctgc	gaagtagctg	ccatatcttc	cagggcttgg	tgctgagggt	180
gattgtcagg	cactttctga	tgaggatttt	gttcggtgcc	aaatacttgc	cccaacagtc	240
cacatgttga	tatattcgcc	gttcggatct	tgtaccacat	catgatgtgt	gatgcgagat	300
agctttcatc	ttttgattac	ttgagcttga	gacagagagg	agtctccgta	tatgcgatat	360
gtgactgcac	agcggatcca	tatccgtccg	tctgtagtgt	ccaccgggtc	gcttgagctt	420
catccccgaac	a					431

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 561 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...561

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

ggttaccaat	ctcaccggaa	ctgcttccaa	tgacgaagtt	tctttggacg	ggacggtgtg	60
gaagagaaag	ctgaagagcc	ggcaagtgtat	aaagcagtag	ctacaacgtc	tacaagaatg	120
gaaccttgat	cggtaatata	gctgaaatca	ttatgtggag	aecggtgtag	ccaatggtac	180
atacatctac	gaagtgaagt	aaagtatcct	gacggtgtat	ctccgaagggt	ggctgtaacc	240

gtgacgtgac	caacagctca	ttgagcaatg	tagatggaca	ggctccttac	acatgcgagt	300
agaaggcaag	aagattattg	cggaagcccc	tggtatgac	acgtctacga	catcaacgga	360
cgtaccgtgg	ccgtagcccc	gaatcgattg	gatacatggc	gcaaaccggt	ttctatgcag	420
tgcgcttcga	tgtggggaat	aacaccatgt	atcgaaaata	caagtaagat	aaagcagata	480
ctttccctg	ctaaagacaa	agaggctgcg	tcgagattat	ttttcgatgc	agcctcttct	540
tttgctactc	atgccggtat	t				561

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

aggcaataga	catagccgat	agtatgttga	ggaaagcaaa	ggaagagaag	aggaaaagga	60
aaagaagaaa	gataccgtag	ctatatccat	acagaaaacca	gtgggcagaa	gatagagttc	120
ctactgccgt	gtaagcatag	taccgatagt	gtaaaacaaga	aacaggccta	tacaaaaagg	180
caaccgagct	tatacggctt	ttaaggaaga	tgacagtatg	ctcaacagtc	ttatctattg	240
gatagagatt	gttgagacaa	ttttcaccca	cgaggtaccc	tataccaaga	gcgacaatgc	300
ggcttgacaa	ctttcgacga	agatcacagg	agaacgaagt	gttcgactct	gaagaagtat	360
ccactccatg	catcactccg	aagatccccc	gcgttgaaga	caaagaacta	ctgcacgca	419

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

gctcctgccg	taatgagctt	tctggagcag	cacaacctca	aaggcaagac	atcatcccct	60
ttgtcacaca	cggcggtggt	ggcatgggca	agtgtttgac	gaaatgaagc	gactggcacc	120
tcaagcgaca	atcctcgacg	gcacgtatc	gacggcaaga	aagccaaaga	atcggccgaa	180
gaagtccaca	acagccgaaa	gcgatgggac	aaatcaaata	acgacaacca	tccctactcc	240
agaccctgag	gaatgataga	ggcaagcttt	ccccacaaa	tcaaacacaa	gctcctaccc	300

tccccggttc ttttccccca caaaaagagg cgccatccga cgctcttttt tataaccaat
aaccaccaaa tacgcaccaa aaaacttttc aaaacgaa

360
398

(2) INFORMATION FOR SEQ ID NO:741

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

acgacctccg	gtacgatggc	gcacccatgc	atatcaggcg	gttttccaat	tgcccgtttt	60
ggggggcgag	tcctgcccgt	tcgttatcag	tgagggtgcg	agtctctggt	ggttttgcag	120
gccaattctt	ccctgacagc	atcgcttttc	ccgttaagac	tgtcggggat	aagaccattg	180
agttcgtggc	tccgccaagg	gtcaggatcg	taggactatc	aatacgtttt	atgccgtgga	240
cttgtagagg	cttctgctcc	ggagatcctc	ggagcggtag	ccaatcaaaa	cctgatggag	300
aggaaatccc	tgatctgata	attgtctcta	ctcaggcgct	cctcttgagg	ctgatcgact	360
ggccacctat	cgtagagaga	aaaacgggct	gagggttttg	tcgtgttgca	ggaacagggtg	420
ttcaacgagt	tttcgggttg	actcccgatg	ctacagcata	ccgcctcttt	gccaaaatgt	480
tctacgacag	tggaaggcaa	atgcacctgt	gggagagacc	ttccccgatgc	aaatgcttcc	540
ttcgggtgatg	ggctcatgac	aacaggaagg	tctccgtagc	ttggcagaac	cgtatctcca	600
acaaaacggag	t					611

(2) INFORMATION FOR SEQ ID NO:742

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

gtcagtgtc	tccccagtgt	attccttttg	gtcaggattt	gatcggttac	tcgattggat	60
tttgaccgtt	ttcctcatat	ctaagatcaa	aattaaactg	atgggggtgct	tcataagttc	120
atctccatcg	gatgaaactc	gtctgcgaaa	tccttagctt	cggggggtcaa	ctgtgtccat	180
gtaggtgtgt	gatccacttg	aaaccacaaa	agaatgtgcc	taggacatac	tgacaagcct	240
taagacagac	gttttcccac	tgccattgtc	gcctattaaa	aggttgactc	ctggagaaaa	300

aatagctcca	agtcaccaat	atctctaaac	tcttcgatgt	gaatctacta	atcataacct	360
acatatatta	caactagaca	aatatatata	taactcgaga	cctttgaaaa	ataaggaggt	420
ggaggcaggg	caaccgcatc	aaatgtaagt	acctgattat	caatcatagt	tttgagtata	480
tncttatctt	gagtataatc	tccgaaatgc	aatcatttga	aaattagcac	ctggattttt	540
cgaatttttg	atgcgttgcc	ctgtgcaagg	tctta			575

(2) INFORMATION FOR SEQ ID NO:743

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 550 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...550

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

ggctaagaag	gaagaggata	caaagggaga	gaaggggtgac	atgttttacgc	ggctgctgta	60
tattcggata	tggcgatagc	cttttcggtc	tcattcgcac	aatgggtgtag	acgggtgctgt	120
ccttgacag	ctctatgagc	aactccacgg	gatgcaccga	agataagaga	taagaactcc	180
ggcagaacgt	tcgaacctgc	tatactgcga	acggggcctg	ccggaggagg	tgtctcgacg	240
aagctttgtc	cgtaccgttc	catttcgaac	ctgtcgcgat	gtttttgccg	gtgagagtgt	300
ttgcgactgt	gctgtcatca	tgaggccggg	gagcccccac	acacgatcat	cagactcttt	360
cttaaaaatg	tgttcatcat	acttttttat	ttgagggttat	gaataatggg	ctgtattatg	420
gtcgggaggt	cattcgccaa	agtccttggt	gccgtagagg	gtattgatcc	acatggcaaa	480
aagtttgtcc	tgacacaata	gaccttggtg	atctcgggtga	taatgtcctt	gtcgcagcagt	540
tgtttgcagc						550

(2) INFORMATION FOR SEQ ID NO:744

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1017 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1017

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

cattcttctg	tttacttgca	gagccatata	ctgctcatga	tcttccctgg	atgagactgt	60
tgcattggagt	ttcattgact	ctttgctgca	gagctgatct	tagtgccttt	gggaaagatc	120
aaacctccgg	tatatggaca	tcgagcaaca	gaaatttccc	caagtttcca	ttagagaagt	180

actcctttcc	tcgtcaatag	gcgagaaata	agaaacgatt	gtcggctggt	tcttgcttcc	240
tgcacatgca	ggacgcgatt	gtcggctgat	tcttgcttcc	tgcacgatgc	aggagcgatt	300
gtcggctgat	tcttgcttcc	tgcacgatgc	aggacgcgat	tgtagctgat	tcttgcttcc	360
tgcacgatgc	aggacgcgat	tgtcaactga	ttttgcttcc	tgcacgatgc	aggacgcgat	420
tgctggctga	ttcttgcttc	cgcacgatgc	aggacgcgat	tgtcagctga	ttcttgcttc	480
ctgcacgatg	aggacgcgat	tgtcagctga	ttcttgcttc	ctgcacgatg	caggacgcgt	540
tgtcaattga	ttcttgcttc	ctgcacgatg	cagggcgcaa	ttgtcagtga	ttcttgcttc	600
ctgcacgatg	caggacgcga	ttgtcggctg	attcttgcttc	ctgcacgatg	gcaggacgcg	660
attgtcagct	gattctgctc	ccatcatgcg	ctaactatca	gctatttgca	actattttat	720
aggactttca	ttaaatcttt	tgccgcagag	ctgattctta	agtgtttttc	aggaaagatc	780
aaactcatgc	ataagggcac	caaacaaata	gaaattactt	gaggtttgca	gaggatcgca	840
tgaagctctc	ctttcttcgt	caaatcaatg	cttgtgtctg	tctgatcgat	atgaggaggt	900
gggaggttat	tgtgcaacag	tctctgagat	aaaagaatga	accatacga	gaggatacta	960
tggtcttcgg	agtcgtacag	tctataacca	aatccactcc	ataaagcaaa	gaangag	1017

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 901 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...901

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

ccccggagcc	atgattgccg	atgcgggtaca	ctcgttgtct	gatctgctgc	cgatttcggtg	60
gttttcat	ttatctccat	ttcgggaaaa	ccatccgaaa	gaaccacgat	tacggacatg	120
gtaagtcca	gaccctcgcc	actgcgacat	tgtctgttacg	ctgatcatca	tcggagctat	180
gctctgctcc	gatggttgac	caaggtatat	cgctatctcc	gctttgggga	cgaattggct	240
cgccggatt	gatagccttg	cttatggcct	ttgtctccat	tgtggccaaa	gagtgcgtgt	300
ccgcataacg	cgatgtgtcg	gaaaagagga	aaatagtcgt	tcatcatagc	caatgcctgg	360
caccaccgta	gtgacgctta	tacctctgtg	gcactttcat	cgggattggc	tgtgcttttc	420
ttttggggcg	cggttggatg	acctcgaacc	gctatcggtc	gctgtagtaa	gtgtctttat	480
catcaaggta	gttttcaaat	ggccgttccg	gctttcccg	atctgctcga	acagagcttc	540
cggatgat	tgaagaagag	atagaaaaaa	tcatttgctc	ggaatcgagg	taaaagggtg	600
tcgtcggatc	cgcactcgca	atatcggtaa	ttactatctg	tcgaagccga	tattttgatg	660
gatggaggcc	tctctgtggc	actatccatg	ctgctacgca	gagggttgag	aagctgctgc	720
gtggacgata	cggccaccca	cacatatagt	catccacgtc	gagccgtttt	catgatatat	780
gttgccataa	cctttttcaa	ttctgtaaag	ctttatgacg	actgaaatca	aatggaagaa	840
atgcgttttt	atgcccgcga	cggtgtgctt	gagcaagagc	cgcaagtggg	ggaaccggtt	900
t						901

(2) INFORMATION FOR SEQ ID NO:746

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

gcaattatgc	ctaattctgct	tggcttttcat	ctgcctttttt	tttctcgatg	ctgtggtaac	60
aaaaatacat	ttcgtgtcga	agggtcgatt	gccggttaga	agacaccgca	caagtgtatc	120
tgaccaagat	cattgggagc	gatcttttgt	actcgattct	gtaaatcctg	accgaaaagg	180
tcgtttcagt	tttgtacaca	agcggactcc	acaccgtctt	tctaccagat	taaactcagg	240
aagcacatat	taattttgcc	gcaaggatcg	gacgggaaat	caacatacag	gtgggtccgta	300
acagcttttc	cgattacgtt	attgaagaca	accaagggcc	tgaaattaac	aatattcgca	360
aggattggcg	ctattgaaag	agcaagcgga	tatcgtttgg	atcattttgt	accgttcata	420
ccaagagaac	aaactggatg	ctcgag				447

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2593 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

tggatgatat	tgcagccggt	cgcaagtaca	tgaaagtgtg	caagcagata	aatgtacaa	60
cgatcccact	cttaatccga	ttcttttggg	caagaagtga	aagcgaccgt	tccccgcatt	120
catcattcct	tccttacgga	caactgcgtt	tccccgtttt	ttacctttct	gtcgtttctcc	180
catggctcga	tatctgtagt	ccgcttgtcg	gcaataggcg	atgtggcaat	gacaataccg	240
gtttttatgc	ggtagccaag	gcatacccac	agcatagttt	cacactgctg	actcgctttt	300
cctgacatcg	ctactaatca	accctccgaa	caatttggaa	gggtggggat	cgacatcaag	360
cacgaagagt	cttccttggg	cggctttctt	actatatcgg	acgactcaag	gatgagcagt	420
tcgactatgt	catcgacctt	ccaatgtaat	acgttccaaa	atcattcgct	tctatcttcg	480
ctttttcggg	tcaaagggtt	cagtcgtgaag	aaaccgcgac	tacagcttcg	gcagcttaag	540
ccaagccacc	caaaaagcca	acccgattgc	cttcctgta	agaacgatcg	ctcagggttt	600
tcacaaagcc	gggcttgaaa	tacatcctcc	ctacccctcc	ttctgaacga	ctccggacat	660
atctctaccg	aactgccgat	agtggaatag	gctccggaca	ccacctcatc	gggatagcac	720
cgtttgccgg	tcatgagcca	agacatatcc	gccggaaaaa	atgcacgagg	tagtgcgtag	780
ccttcggaga	gagacgatgt	gcagattttt	cttttcgggg	gtaaggggaa	agaaaaaaca	840
tactgagcga	gtgggcagac	gaatcgccac	gcacgtatc	cgtgccgggtc	tgctgtcgct	900
gccggaagag	ctatctctta	ttcatgcctt	ggctgtatgg	tttcaatgga	tagtgccaat	960
atgcacttcg	catcattggt	ggtacacgag	ttatctccat	ctggtgtgcc	acgcatccgg	1020
cagcaggatt	ctcggatatg	gtcagcgcat	agaagattgt	atcgagcgag	acttggatgc	1080
cggccttgct	ccgttttcgg	caataaaccc	tgcttccgca	aggattagca	tgccgtactc	1140
agattgaacc	tcaacttatc	attaacaaaa	tagttttcac	cttactgatt	tgaattcaga	1200
tgaaactgag	attaataaag	ctgatatcga	tgccggactc	ggctcccggc	gcgaagcaga	1260
gaaatacatc	accgaggaag	agtgaaaatc	aatgggtcga	tcgctcgtct	aacggatttg	1320
gtcgcgaaaa	agacattggt	cttcttgatg	atattgacat	tcctatcaag	gactcattcg	1380

tgaagaaatc	tccctgcgca	aatatgagga	acggctcgct	cctccgcctc	caatcaaggc	1440
agacaggatg	aaaagcgaaa	gaatccgcgt	ctaaacaaca	caaagagggt	ccgtcgcaac	1500
gcaatgccgg	gaaacctcgt	ccgaaagcag	gattcgcaat	cgttggaag	aagtgatga	1560
ggatgatttg	acttcgatac	aggacgcggt	tttcggaaag	gaaatagaaa	gaacgaccat	1620
ctgtaaaaaa	attccgacac	taagcagagc	ctaaaaagtt	gaggttagaa	aaaagaaggc	1680
gcagactcct	tggatatagg	agtcttgccg	ttcgctatta	tttctttag	aaatcgtatc	1740
tgcggtaaga	ctgttgcgat	ggagttcatt	gagctctttt	gctgcagagc	tgattcttag	1800
tgtcttcggg	aaagtcaaac	ctccggtata	tgggtaccga	gcaaatagaa	atttccccaa	1860
gttccatcag	agaagtactc	ctttcctcgt	caaataggcg	agaaataaga	acgattgtca	1920
gctgtttctt	gctccctgca	cgatgcagga	cgcgattgtc	gttgattctt	gctccctgca	1980
cgatgcagga	cgcgattgtc	agttgattct	gcttccctgca	cgatgcagga	cgcgattgtc	2040
agttgattct	tgctccctca	cgatgcagga	cgcgattgtc	agttgattct	tgctccctgc	2100
acgatgcgga	cgcgattgtc	agttgattct	tgcttccctgc	acgatgcagg	acgcgatgtc	2160
agttgattct	tgcttccctgc	acgatgcagg	acgcgatgtg	cagttattct	tgcttccctgc	2220
acgatgcagg	acgcgatgtg	cagctgactc	tgctccatca	atacgctaac	tatcagctgt	2280
ttgcaactat	tttataggac	tttatggaag	tcttttgccg	cagagctgat	tcttagtttt	2340
ttttcagatc	agcaaaaaga	aagagcgagg	aggtaatcca	actcacaacg	aatgtcagta	2400
aagcatcacc	agttctacgc	gccgattgat	acgaatagca	atctgcatat	tgccgttgcc	2460
agttcacgtt	cgttatggcc	gatataaggc	ttgctgatgt	ttctccaaaa	taatcatgtg	2520
tacccccgaa	acggcaattc	aatataccgc	aagagctgcc	tcgggataac	cggagttagg	2580
acttgcgatg	tgc					2593

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic).

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

cgttcaggcg	aaacgaaccg	acaagaaagg	acttgtgcct	gtcatcgggg	catctcagtg	60
ggcagaaccc	attcaggctt	ctccaccaag	tgcaagaccc	gctcgctctt	tgggacagcc	120
gaaaacaacg	gctcatcggc	aagagtgaat	ggcgggtgtcc	gtcaatcaga	aactcgggtga	180
atgcaccgca	ctcatcacgc	acgctttcac	gaactctgtg	aaaggaaaga	aattttttacc	240
gccacgacgt	gagggatgcc	tatcaggggc	aaatccacca	ccaagccctg	ctctggagag	300
tttcgggagag	tatctcacac	agacaaaaga	gcgcataagg	attacagagc	tttgaagacg	360
ttcaaaactcc	gtacctacca	gctctccctg	ctcgtgagta	tgtacaaaag	aagcacaagg	420
taagagacat	tcccctttca	cgttggataa	agcctttat			459

(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 888 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...888

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

cttttggtcc	atacttatag	atactcetta	ggttgcat	ttttttaccg	tacaagcctt	60
cgaaagtatt	catggtcaga	gcggcatata	atgattaaac	atataaaaat	aatccatca	120
gcaagattgg	ccttgctgat	ggataatgta	ggaagagaca	taccaagccg	acgaaatcgg	180
ctgcttgct	cacttgccga	ttttagccac	gaggctcgcg	gtggtcacga	tcaccaccac	240
gacgtcgaag	ttacgacctc	cttcgcgtcc	tccttcacgc	cgctcacgcc	gctcctcggc	300
tgaggctcca	cgtagccttc	cggtttttcc	agtagcacct	tgcgctgagt	ttgaacttgc	360
cggctctcgg	atctatatcg	agcagcttaa	cgtgatggat	tcgccttctt	tcaggttggt	420
gtcctcgatg	gtctcgaatc	gttccaatcc	acttcggaga	tatgcagaag	tccttccttg	480
ccggggagga	ttcgacgaag	cagccgtatg	gcatacacact	tgtgatcttg	cccggatagt	540
ttctccgact	tccggcatag	ccacgatgcc	cttgatcatg	ccgattgcgc	atcgatgcag	600
ggtttggttcg	taccactgat	ctcgatgaca	cccatgcac	tacctcttcg	atgttccactg	660
tggcaccact	cttctcctgt	atgcctggat	gatctttccg	cccgggccta	tgactgctcc	720
gataaaactcc	ttgccatatg	catcttctcg	atacgcggng	catgaggcta	tgaggctcatc	780
tccttctcgg	gctgagcttc	catgatcttg	ccgaggatgt	gtaggcgtn	ttgttggtt	840
gctccagagc	attctccaaa	atctcataag	ctgagaccat	ccccttga		888

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 465 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

aaaaagcaaa	tgccgggtatc	acgggttctt	cgttgccgggt	ataggatgca	tgagcgaagc	60
cacaaatagc	agaccataga	acaggagcaa	ccaatatgcc	atcctttgcg	ccctcctatg	120
ccatagagtg	gaaatttttt	catattctca	ggggagaata	tcaatcagtt	tatgaatgct	180
tgctgtgtcg	agtgtccgt	cagagagaag	cgcaggcgag	ccgtgtggag	aggcacggtc	240
ggatgcgtat	cgggagtacg	aagaagccat	tgtcctgaag	atgttcggcc	aacgaatgca	300
aggagcattt	tcgcctacca	tatagggaat	gatgtgactc	gatatggcat	ttctatgcct	360
tttcccttga	tagcatcacg	caaaagcgta	gcgaatcctc	cagccgcttt	ctctccatca	420
caaactcagg	tagccgacgg	atatcagatc	agtcacatct	atcgt		465

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 510 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

gattgttttt	gatttatata	tagatcgttt	tccattttata	tatagatcga	agtcatttgt	60
atataaatcg	aagaccgaaa	aaggcccttt	cggaaagctaa	ataaaagagg	caccgcacg	120
attcgtggcc	gaaccgtgcg	ggtgccttgc	ctttaggaga	agtattaaga	gggtttattc	180
ctacttattc	gtcatagggt	ttatactgtt	tgtccgaata	tcgaaatgac	atggtaggtt	240
atggggcgaa	aggatcggcc	ggaaagatcg	gggtataaaa	ggtgttcggt	gcactgttct	300
gttatagtct	attatccatg	tagttctatt	caagcaatcg	gcttctcggc	agcgacatcc	360
aacttccgac	agagagcttc	atcgggcgac	aatgtaagaa	aatatggttc	atccgacatt	420
cagcgtgacg	gaggcgtggt	gaaggcatag	agtcttaggt	tgaagtattg	ntgatctcta	480
aatccatatg	cactcttttg	agtacctttt				510

(2) INFORMATION FOR SEQ ID NO:752

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 128 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...128

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

gccttaaaaa	gccaaattcc	gcagagagtt	agttttcggt	agttcgaatt	gattcttcga	60
ccaaggtcca	atagagcctt	atagtttcgg	atagaaatgg	acataatcct	aatttgatag	120
cgttttta						128

(2) INFORMATION FOR SEQ ID NO:753

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 268 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...268

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

aaataaaaaca	cactaataac	caatgtgttg	tgccattcct	ttatatcgac	tcacgttaag	60
aaaagaccac	tggtcataatc	gcaaaaatgc	cgtacaatgt	ctctaataag	ccccctgggc	120
gatgttgtag	ttctttctcga	tggcatattg	ctccggggct	gccgaggtat	tcttccacaa	180
tgtgaagacg	ctcggatcgg	tcaaatgttt	cgacatgatt	actgcttttt	ttgacctctc	240
cgattcgtac	acgtcagttc	gtaaaaat				268

(2) INFORMATION FOR SEQ ID NO:754

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2560 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2560

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

actaccggtg	gattccggtg	aaactactag	tagattcttc	caaaaccaca	gtagttttgc	60
ccgaaaccac	tagtagtttt	ctctgaaacc	actagtgggt	tattacgcgt	taaaagagta	120
ttgtcgtgtg	ccgaaaaaaa	gatggatatca	ggggcggtta	atttcattct	ggttcaacac	180
cgttttaggag	cacgacgatt	aggattttaca	cctgccttcg	atgaatatcc	tgccgatttg	240
cttggtttcca	gcataatccat	atacaaaaag	gccacccttt	cctatgaaaag	agcgccgtat	300
ctgtccctgt	ttctaacctt	acctgaaatt	attcggcagg	atgatagctt	cagaaggcca	360
tgctgcagca	caagtgccac	aatcaataca	tgatcagcat	cgattttata	gatgctacct	420
tcagagatag	ctgataccgg	aattcatcga	tgcattgatcc	gcattgctaca	caactgtcat	480
taataacgta	gccatagttt	tgtaatatgt	ttatggtaag	acaaattttg	tttatcgtac	540
acttttgtga	aacaaaggta	gaaagaaaac	cgaatatacc	aacatgtagt	atgcgaattt	600
tctactgcat	ttctattgaa	tagagttaac	ttattgattt	ctccgatttt	acgaggtttt	660
tgaagagatt	atgagtaata	agcattgaga	aaagtagtct	cgagggtcga	cttaaaccgc	720
aatgaatacc	tataggagct	atatatatgc	ttgttgctcg	caatcatccc	tacataaaaat	780
tggccgagat	caggtaagag	gaatgagacg	aaataagctg	ctgtttactt	ttcttttagca	840
ggacttgctt	agtagagata	gcggaagaga	agaaaagagag	aaaaaatccg	agaaagcacg	900
acgaaccggt	gcggaagaag	aaaaatcatt	accatcaata	gaacgctgta	ccatttctct	960
tggaatcgca	catagccggc	taccctaaaa	cacctttcat	actaccactc	ttgagggtatg	1020
cctctattgt	tcgtctttca	tgaagtcttt	caccgtaccc	tctcttctctg	cgagaggcgg	1080
ctattcaaga	acgaagtggg	aacaagatcg	ccgcgactga	tcatatcatc	agtatttggc	1140
tgagggcatt	cgggctaaag	cgatttttac	gggaaaaccg	gatccatccg	aaagagaaaat	1200
gtcgggtatg	tgcaatcctg	tttggaagtc	caatagtttc	ggatgacgga	cagaccacgc	1260
tctgttgtag	tacccgatga	ttcttcgatg	caagggggagc	caactgtttg	acaaaagcct	1320
ctgaaaatga	ttcagactac	ggaaattcat	caccgcgacc	aatgaatcca	atgaagggat	1380
tcgtagatta	ataattcttg	agtgatcggg	acggcttgat	agaggcacgg	cacttccctt	1440
ggcacagagt	gccggcagca	gacaataagc	tttggcccat	gcagctccgt	atagagcagg	1500
atcgggcaaa	tcggtcttgg	gcggtaggaa	acgatatttg	tcggaaggac	tcccgtaagg	1560
gttcgcttag	atccatccct	tcgcatatgc	atccggcagt	atccttttct	cggtggatac	1620
ctcgattctg	ttttcccacc	gaacctccgg	atgaggaggc	tctattttcag	gatatgagct	1680

tcggagcctg	ctttgcctgt	agcaaggatg	acatcattct	attatcattg	atgttaaadc	1740
catagacgcc	ggcaccgaaa	tagtgccttt	gtcttcacgc	agccaactgt	cattgactcc	1800
ctcaatgtca	aaactgatgc	atcgacgatg	atatctcctg	ttattttctt	tatgccccat	1860
tggtgacggc	atcgaccaaa	gcataggcaa	atcgaccgga	gtccgtcggg	aatagttgga	1920
tgcgagagaa	ggatctcctc	ctcctttgat	gatgagatta	cgccaagaat	cccttttcga	1980
atTTTTccat	ccatgccgac	tccggtataa	atgggtatct	ggttccccct	agacgcaaaa	2040
tggaagcaga	ggttacgact	taaccagaga	tgccggacaa	aactgttcgt	ctcttcgatt	2100
tgatacgaaa	ggctatcgtc	ccgacagcga	cgtatctcca	cgccgatacg	acttttgtct	2160
gtctctcagc	tttcttgatg	atatctattg	caccccgatc	ttgtgagaaa	ggctctgccc	2220
gagaattgca	aagagaagaa	atagaagata	ttgtttaaac	cccaatcggg	cgtagagatt	2280
ctcctttgtg	atttcatttc	tgattcattt	ggaatgtttt	gagcatttgc	tacttcttag	2340
aattgatgac	tgcaacttgc	ttgtttgatt	gcttctatca	gtttgtccgc	aagagcaaat	2400
tacgaaacca	atgctcagat	tttgaataat	aaccggaatt	aagaatatca	tgagaaaaat	2460
aatacgaagt	gaaaaaggct	gtgtggagga	aaaatccacc	agcctttttt	tatgtctacc	2520
tgaggagtat	tctcaaataa	ggggcctttt	tgagaatttt			2560

(2) INFORMATION FOR SEQ ID NO:755

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

cagacttttg	gcgttgagct	gtatttggaa	gccggcatcc	gtggtggttg	atcggttcta	60
tccttgca	ccgtgacccc	gtgacgaagg	agaaccgcat	ccgcgtctcg	agctcctgcg	120
tctggctatt	ccgcgtcgta	catatacaac	aaccacatgg	atgttatcgc	tgctgcggta	180
aagaatgtat	acgacctcgc	gaaagcatta	cacgtggcta	tgtgattaca	tatgagaatc	240
caatctgcgt	cacttcactg	ttgagctgga	aaaagccaag	taagcggtaa	gaaactgtat	300
aaagaaaacg	gtaaaggagg	ttgcttccat	gtcgagagac	cagggaagca	actttctttt	360
ttttgtgat	aaaaagggtt	tttgtttc				388

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1151 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1151

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

tctcaatttg	aatcttgaat	ctctgacaat	atgaattcgt	acttgtttta	taattgaatg	60
tagcaatcat	gagctttaga	tgtacgttag	tggctgaatg	cgattgccct	gttacaaacg	120
gacttgatac	aacattttcc	ctactttgcg	ttagtttcct	atagtaataa	acaacactat	180
gtggcttttg	gagaaagtca	tgtaaaagta	atltgaccga	aggctttgtg	ggatgtttcg	240
ccgaggattc	aagaaggcat	acataaaagcc	ctcagtttgt	gtagcatgca	atgaagagta	300
tctcaagggt	gcaatagtcg	gtttgacgcc	gacaaacctc	gtgtcgagtg	tgcgggagtg	360
ggttatgatg	tgaatgtctc	gctcaccact	tatctgccta	tcaggggaag	aaagagggac	420
ttatttggtg	tacacaactg	accgagaaga	tgcccattta	ttgtatggct	tttccacgaa	480
agaagagcgt	cgctcttcgg	ccaactcaca	tctgtcagcg	gtgtcgggcc	tacgacggcc	540
agctcatcct	atcttccctat	gctcctcaag	agctggccgc	actcattaca	cagggcaggc	600
cgatgcgctg	aaagccgtga	agggcatcgg	tctgaagccg	ctcagcgtat	catcgtggat	660
ctgaaaagta	agatacaact	ggaaactcct	cagacgagat	cttgtctgca	cggacggctg	720
taggagatgc	tgctcgaata	ccatagcttc	gggagaagaa	gccatcagtg	ctctaaagat	780
gcttgctttg	ccgatccggc	tatacgcaaa	gcggtcaagt	ccattctctc	cgagattcgt	840
ccttagctgt	cgaagatatt	atcaagcgag	cattacgaat	gtataacctt	ttctcaaaca	900
aagaaggatc	acgggtgtct	tgataatgga	aagaaaaaca	aaccatttcg	gctacttgca	960
gctctactgc	ccataatcgc	ggccttgttt	tggtcacatg	gcgtccggcg	agtggctccg	1020
tacctgcccg	actgccatca	acaatcacta	tacaactccc	actccggccg	atacgactgt	1080
ttccccgtca	agaagaccca	agctaaagac	taccgttatc	tgggtggaac	tatccactcg	1140
atctgaagac	t					1151

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 624 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

tctctttgac	agagtatatg	tcctcgtcga	gagacggttt	cgtcaataaa	gccggtaaat	60
cggccctcct	ctctgcgaga	gggcagaaat	cctgcaagaa	tggcgaagcc	cttctctctc	120
cttcttgtac	tacacttttg	ttcttcgatg	aacaatgtca	atgatcgcg	tccgactgcc	180
ccctcccca	tctccgatcg	aagcccttca	tgtggcggac	agtgggtgca	aaagtaaaac	240
cttttccgaa	tcggcaaaat	caatcgaatc	ttttttcagg	gctgacgctc	aagaaaagct	300
cgtcgcctga	tcctccccct	aaaaaaagaa	tcccgcgcgc	ctcgcggaac	aattcctcta	360
tcaatcgggc	agcaatcgct	tttgcggtca	caaagtacgc	cttttttctt	tacagacaaa	420
tctttcaaaa	tctttttctca	acggttcgac	aaaaaaaaaac	agcccccgaa	gaaaaggact	480
ccctcccaag	aagacaaaaa	aagaagcata	tatataatat	agttcgcgcg	cgtaagagaa	540
cccaaaagga	gcgcaaaaaga	aacagaatga	gaagagaaaa	aaaattctcg	caaaagactt	600
ttcagtccca	aaaggcggcc	ggct				624

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1239 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1239

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

gaggatcccc	gaaattttct	cgttttcccg	gtcccaaaat	ttggagcaca	ccgtttttgcc	60
aagaatgtgc	tgacgctctg	tcgcacggca	aatatcgcaa	actgaatccc	aaactgcccg	120
agctggaaaa	ggctatcgaa	atggaggttt	ggctctgaat	ccgcccgtcg	cgaacgagct	180
gacgcctcag	gtcataccct	cgacgaggaa	cgcgacagag	cctatcaggc	gctgatgtcg	240
cgcgctgttc	gtatgctttc	gacgaggaca	gccagctgcg	caacgcggca	gccaaatcga	300
agacgtggcc	gctcgctacg	gcaacgtgat	ccgaatgaac	tatacaagga	gacggcccg	360
atagagaatt	tcctcaccga	tctcaagggc	gaaacattcg	ccccctcgta	acgaaactcg	420
gcgtgacggc	actcgttgac	aactggaaaa	gaacaataag	gccttcgccg	acttcttctt	480
ccgccgtctg	gcaccgacca	acgaggcaaa	tatgacgtga	aggcaactccg	tgccgagacg	540
accgcacatt	ggtagccgtg	gtgcgcgcga	tggactccat	cgacgacagg	agccgagccc	600
ggagatccgt	gcgctcatcg	agctctacaa	ccgactctgg	ccaatcgccg	cgccctcttg	660
gctcgctcgg	ccagctacgg	agaagcgccg	tggagaagcg	tcgtgcccag	atcgccgaga	720
tgctccgccc	cctgccgccc	ggatcggtga	ggagaagaag	acggccgtct	ttgccgggtcg	780
cacctcgcca	cgggcaagaa	ccgccactat	ctcatcacat	tcgtagccga	gaaggcgacg	840
aggaggatcg	ctggtaccgc	atcaacgggg	agcaactcgt	cttggtgccg	aagacgaact	900
ccccaagccg	aagaaaaaga	agaaacccgc	agcagcacgg	acactccatc	cgagccgccc	960
gtcctgccgg	atccatcgca	ggaggcagca	gtagcggcgg	tggcgagcaa	ggctctaccg	1020
gcggcggaac	tgatcccccc	gtgccgtcct	gccggccgca	gcagcacagg	caaccgagat	1080
aaaagacaaa	ggggctgtga	ccaaattcat	ttttggcaca	gcccctttat	attcgaaaaa	1140
ttaggtgtta	gccctgatta	gcctttttct	ctgnttcaaa	ctatgtctaa	agaaaagtct	1200
atgctaggac	ttanccaaca	accgcttttc	ttactttgcg			1239

(2) INFORMATION FOR SEQ ID NO:759

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 504 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

tctaataacg	tctgtgtcgc	attgataagt	tctttaatct	catcacaacc	cgttctttga	60
agtcgctttc	attaaatagt	ttagattttg	aaaatacaca	tttacattgc	tttgctgtgc	120
tgaggattta	acagcgtcaa	gatactttgc	aattttatat	catcttcac	ggatgagcaa	180
gttttttagca	tatctgtact	acatcgctaa	attcacgcaa	gtaattctct	gcagattctt	240
cttgcttacc	ttcatatcac	tctcaaactg	ttcggagtcg	tttctattgg	tattagtagc	300

tcaaattggt	tgatgtattt	agcctttcca	ttaaaacgac	tagaatagca	tctaggggtga	360
aggtttttcc	tgtagaacgt	tttccataca	tatattgaga	cccgttgata	acttttgtcc	420
attcggaaat	attggaaaaa	gtttattcct	tcttccgaag	tcagtgatac	tttagtctta	480
tccattagac	gagtttcagt	gttt				504

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

ggcgaatgtc	tctttggttg	gacgacaagc	agatagggat	agccgatagc	cgaattccaa	60
gggcgacaca	acgctgcgtt	tctctgcctc	gctctcgctg	ttccaggcac	acatcatttg	120
ctgctcaaga	gcttgcttct	cgaaggcata	ccactgctac	ggatgtgcgc	gtagtctctc	180
agccgaagac	cgctcggatt	cgtcggctct	ctatcccaac	tatacgggca	aggagcggct	240
gagcccaagc	acatgatgag	cggcacattt	ctatcgggag	ggagtctctc	tccacgggca	300
agtatgtact	tacttcttat	cgggtaagca	gggataataa	gccgctgtga	cctataacca	360
gctgcgcgat	gccaaaggaa	atatcctgct	catctgaacg	aaaaagaggc	ccttggttgg	420
atgccgcgat	aagatatgct	gtggtgattc	gcaaggaagg	aaatgcgaag	cgtttggttg	480
ctttcgatcc	atggggaaag	gtgaaaaaac	cttgggtgtc	caatt		525

(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

aggatccccg	aaattagggg	ttgtaacttc	tatatcgtga	cagttcctac	cccatagatc	60
acaatcacac	cccggactta	cggccacttt	tggcagccgc	gaaacaattg	gaaaggtaat	120
cggccaagga	gatgtggtgg	tgtacgaagt	acgggtgtatc	ccggtgtaac	agaagacgaa	180
tgtattccga	ttatcggaag	gtttcgggtc	tcaaatacaa	tgtggacttc	tttgccggat	240
acagtccgaa	cgaatcaatc	cgggagataa	agttcacaca	gtagagaata	taaaaaagtg	300

acatccgggt	ctactccgga	aatagccgac	tatgtggata	gaagtataat	accgtgttgg	360
tcaatggcac	acacaaagca	tcttccataa	aattgcagag	gcttcaaaaa	tcatagaaaa	420
cgcccaacga	gatgtaaaca	tgcatthtat	aacgaaatcg	cgaagatttt	caatgcaatg	480
gacatttgata	gcacgaagta	ttggaggctg	cagctacaaa	atggaacttc	ctacctttta	540
gccgggcttg	gtcgggtggc	attgtatagg	ggtagacccc	tattatctat	tcagcgagca	600
caggtatatg	gagtttatcc	tcgggtattg	atgtctggag	aaggctgaat	gacagcatgg	660
gctcctatat	agcctcgcaa	accatcagca	aatgaataaa	gcaggcatca	tggtgaaaga	720
tgacgaatt	ctgatttagg	atthacattc	aaagagaatt	gtccggatat	ccgtaatacc	780
aaaggataga	cacgtacagc	accctgcaag	aatacacgaa	aaatattata	gtaacgatcc	840
ttgggcaaat	ccttctatcg	ctgagcaagt	atatggaata	aaattcacia	tgaattccct	900
aaaggaaaa	tcgatgccat	tattattgct	gagcgcatag	agatttttcg	aatatcgatc	960
tcgaaaaatc	atccacagcc	acaccattat	ctacgatgtg	aagggcattc	taccccaagg	1020
gaaaaagtgc	acaaactgta	gtgtatcact	cctaaaagaa	aaatcctaca	gacagatata	1080
ggtctgcaaa	ccacaggggg	gcttcccttc	tatcttaccg	gcatactttt	ctcgtaaaatt	1140
tttcatcggc	ctcagatgaa	tgtcttacgc	aaaccgagaa	agaaacgttt	ttatctgaca	1200
ccaatgattc	tgatgatcac	agtttcaaga	gagctgtttc	ctaaggaatt	agtttgccga	1260
tatgttttat	ttggaccttt	gcgctggcaa	aaagatgcac	ctatgcatcc	aatgactgca	1320
gaaaagaaaa	attactaata	actaaccac	ttaaaccattg	gttttctcag	ataagaagca	1380
caatttcacc	gcaggaccct	gtatcctcaa	tgacttagtt	tgaaagatgc	tgcatcagca	1440
tgtctcaatt	ttgcaggaac	gggtctttct	ttcttgaagt	ttctcaccgc	gacaaaagat	1500
tcgatgctgt	aatgctcgag	ctcgcaatct	cttcaaagaa	cttcttgatg	tgcccgaagg	1560
ctatgaagac	ttttcctcgg	tggtggcgcc	agcctccaat	tctaccaagt	accgctgacc	1620
tgctaaagaa	gaaagcagcc	tttatcaaca	ccggtacatg	ggcaacaacg	ccatcaagca	1680
ggccaagatc	atgacgcagg	tatatggtgg	agaagagagg	ttttggcttc	atctgaagac	1740
aagaacttct	catacatccc	caagatttcg	ttattcctga	ggacgtagat	tatttccact	1800
tcacgacaaa	caaacgatct	acgggtactga	aattcgtaag	gacttcgaca	cgaagactcg	1860
cctgtagcag	acatgtcttc	cgacattttc	tctcgtccga	tagacgtttc	cagtatgacc	1920
tcatctacgg	tggtgctcag	aagaacatcg	gtccggccgg	gctacttttc	tatttgtaaa	1980
aacggatgtg	ctcggacaag	tagatcgtct	ctacccgata	tgctgaacta	tcagatccac	2040
atcaagaaag	actctatgtc	aacactcctc	ccgtattccc	cgtttatgta	gcactccaga	2100
cgatgaatgg	tacaaagaac	tcggcggtgt	gaaggtgttg	gaaaagatga	atctggcaag	2160
gcagccctta	tctacgatgc	catcgacagc	agcaagatct	tccgcgcacg	gttaatcctg	2220
aagaccgctc	tatcatgaac	gcttgcttcg	tgataaggat	gagtacaaaag	aactggagaa	2280
agagttcgct	acgttttgca	cttacgcggc	atggtaggta	tcaagggaca	ccgctctgta	2340
ggcgggtttc	gccttctctc	tacaacgcac	tgcctatcga	aagcgtacaa	tctttgggta	2400
ggtaatatga	gaattcgaag	ctaagcacta	atcgtgaata	aattgaaaga	ataagatgat	2460
tgccccgattt	cgct					2474

(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 656 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...656

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

atttgtggcc	aaccgcgttt	gtatcccaaa	caatcctcgt	tcttcggagt	gatcaagtgt	60
tcttttgcg	gtgaggcaga	gaaaatcgca	gagctggagt	cgtgatgcgg	cgcgactatg	120
gagacaaatt	gaatatattc	cgctctttga	aacgctgctt	gagtgccttc	cgcccgaggt	180
gcagaagata	aaagcctatc	cgacctcttg	gacaagctgg	atttgtcacg	agaggaactt	240
gtttcgctcg	agacagctac	tgcatgtgtg	agatgatcca	attggccggc	ttggtgtggc	300
cgtggcgaat	gctcgggaag	ccgtcaaagc	ctgtgccgac	tatttacgac	gagcaacgag	360

gagaacggtg	tcgcccactt	ggtggacaag	taatccgaca	cgaatatgaa	gccgttcctt	420
tctccgtaga	agatgtcaat	atattgtgcc	gggtacgctc	atggagagcc	ttggtattcg	480
ctgcaccaag	tcgcgcgtgg	ctatgtcgag	gcaacgatgc	cgggtggatat	tcgcactcgc	540
agcctatggg	tattttgcat	ggaggagcca	gcttggcttt	tgcagagacc	tggccggatt	600
cngtttccgt	ggcantctgc	aatnccgggg	agagataang	gtggggattg	canggt	656

(2) INFORMATION FOR SEQ ID NO:763

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1278 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1278

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

aggtttgtac	agcctctcga	agcggcgatt	ctaataccga	ttgttaaaac	actaatacca	60
acgacttcac	catgaaagt	tacaagacaa	atgaggtgaa	aacatctcca	ttttgggtag	120
ctccggcgcc	ggaaaaacca	cccttgcgag	gcgatgctct	tcgaggggtg	agtataaaaa	180
cgtagaggaa	gcatagtgc	ggcaatacgg	tctgcgacta	tttccccgta	gagaaggagt	240
atggaactct	gtattctcta	cggttttctc	tgtagagtgg	caggataaaa	agctaatttc	300
atcgactgcc	cgggagcgga	cgactttatc	ggcggtagcg	tctggctctg	aacgtcacgg	360
actgtgccct	cgtagtagtg	aatgcgcagt	atgcgtggaa	gtagggttta	tcaatcaatt	420
ccgctatgtg	gagcagttgc	aaagcctgcc	atcttcatca	tcaaccagtt	ggatcaggac	480
aaggccgact	cgactctgct	gtatcacagc	ttcgggagcg	atatggctcc	aagatagtgc	540
cgtacagtat	cccgtaaaat	cgggagcagg	gttcaatgcc	gtggctcgag	gctgaagatg	600
aaaatgtatc	gctggaaacc	tgaaggaggt	gtgcccgggt	actggagatt	ccggccgagg	660
agcaagacaa	agcgaaagaa	atgcataggc	tttgggtggag	gctgcggccg	aaaacgatga	720
gagcctgatg	gaaaattctt	cgatcaggga	agtctctctg	aagaggagat	gcgcgatggg	780
atcctgccgg	tctgatctcg	cagggtatgt	accccggtgt	ctgtgtcagt	gcgagaagga	840
tatgtgtgtg	cgccgtacac	tggagttcct	cggcaacgtg	gtcccggcgt	gaacaaactg	900
ccggcacctg	tggctgtgag	cggagaggaa	ggaaaccgga	tgcttcggct	cccctttgca	960
tccatttctt	caagactacg	tagaaccgca	tattggtgaa	gtatcatatt	tcaaagtaat	1020
gagcggtagc	tcaccgaggg	agtagatctg	ctcaatgctg	accgaggctc	caaggagcca	1080
tcagtcagat	attcgtgccg	gccggacagc	aacgcatcaa	ggtggacaga	tgtgtgcccg	1140
gcgatatagg	agctactgtg	aagctcaaag	aggtaccctg	ggcaatacgc	tgaacgaaaa	1200
aggcgtggag	catcgtttgc	acttgtcaaa	ttcccagacc	caagtaccgt	cgtgccatca	1260
gggctgccaa	cgaaccga					1278

(2) INFORMATION FOR SEQ ID NO:764

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

```

gttcaggaaa agaatacac cttccctacc gatgccaaagt tgcataaaag atcgtgcgca      60
agatttttggg catcgtccat aagttgaatc ttccctcttgc caaagctata cctttgtttt      120
gaagcgggatt tatcgcgacc aacgcttcgc catcatccca agaatcgcaa gaagcgctg      180
aaggcagaca ataaatgcga acaatagccg gacgattggt tcgagagctc aagcgtaatc      240
ttggaataat tctctctacg ccgaattgat tgagagggtt gaagccattc ttcccaaaga      300
cgtaacagcc cccaaaagat ttattccatt catgagccgg aggtcaatgc atcagcaaag      360
gcaaagagca caagaagtac gaattcggca ataggatatcc gtcatacgct cggctacggg      420
tattatcctt gaagcccgat ctttcgaaat gagtatgacg ggcacacgat agaagcttcg      480
ccggaacaag tgaacgactc acacacagaa agatcaaaaat accggccggg gacagaggta      540
tcgaggccgg aaagaagtta acggaacccg gattttaata ccggataccc caagcaatca      600
gacagcagac atcagaggtg caagaaacac aaattatctg caagcgagca ggcatagaac      660
ccaccatcgg acacttgaaa tcagatatcg tttaggctgc aacttttaca aaggattggc      720
cggggatgct ataaaatact gttggctgca gctgcttata acttcaaaag agccatgaaa      780
gctcttggga ctttatcaaa ataataagcc agatgccatt tgccaatggg ttccgcttaa      840
agagggtttt taagggacga ctatgtaaga tacaccgtca gaccgagaga ccggattgct      900
ctgaaagaag gcagtcgtaa tctccgaaaa aaatagagct gtgcagaagg gaaatcctcc      960
ctatgcacag ctctattttt cagcatatcc aaactactag tagtttcaga aaa          1013

```

(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 846 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...846

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

```

gctgattttc caagatgata ccgcactgtg tttgtggaat gtccccagac aattacaggc      60
ttacgacgaa ctgttatcgt atttccgttt ttcagtgtat gatggagtag tccacttcac      120
gttgctgtgc atatttcatt ttttccatta ccggtgaata tcgatatgat ttttatcgaa      180
ggccatgaac tccgaacatg tcggctgtga tgacagcccg tgcagagatt gaaaaacgat      240
cgtagcgtac gacgccttcc tgcacgggtgc aggagaccag gtaggccta cggctcatt      300
acaacatgct aattatcagt gcattatggc caattaaagt aaacgagaac gaccttagaa      360
attttccctg ttttgctctc tcaaaattcg ttccccctt gtttgggaag ttcagactca      420
atagcagatc gacgacctcg atccccctgt cgtatttgaa gcatcatttc ttataataga      480
aagaagacac tgaagatggg gatgatgtca tttttcagta cacatcgctt tttctttatt      540
ttgtagagca tggtttcgaa tttgggaccg gcttttgaaa tcagatactc taagaaacgt      600
ttcaaagaac tatgttattc gaatcgatta cccctgtcaa tgggtggctga tagcagggtat      660
cctgctcttt gtttttgaga tttttaccgg ggtttcttct tggcttgttt cggtatggga      720
gtttttgtcg ccatttaccg gcggccttgg ggttgtctat tgtgtggcag accgtttttt      780
ttatgtggct tcgctgctct cgctcttctc gctcagacct tttatgcaga agaggcgag      840
aaggct

```

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

tggaggactt	taacttcgat	gctcccaaaa	caaaggcttt	caaggctatt	ctgccgcatt	60
gaaggtgggc	gaaaagaaa	tactctacgt	ccttcccggg	tgaataagaa	tgtgtacttg	120
tctgctcgca	acctgccgaa	tacgaattga	ttcttgccaa	tctgatcaat	acttacacag	180
tggtggcttc	caagaactcg	tgctgacaga	gcgttctggt	gccgttggtta	atgaactatt	240
taaagataag	gaggatttgg	tatatgggaa	tcattcattaa	gccgattatt	tcggaaagat	300
gacggctgtt	acggaaaaga	tgctcgagcg	ttatggcttc	cgctttctcc	taacgcgaat	360
aaaatagaga	ttaagaaggc	tgtagaggct	attataatgt	gaaagtcgaa	gacgtgaaca	420
cgatgagata	tgacggtaag	ctaaaaccgt	ataccaagag	tggactgatt	cgcggtaaaa	480
agcttctttc	aaaaggcgat	tgtgacgctt	aagaaaggag	aaacgatcga	cttcttcaga	540
tatctaagaa	aaatggga					558

(2) INFORMATION FOR SEQ ID NO:767

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

cgaggaaaatg	aaagctcggc	cggcagcgtg	ggcaagatcc	gcgaatgtgc	gccttactgc	60
tcaaataactg	caagactacg	ggtatcccgt	catcgtcacg	gacacatcac	caaagaaggt	120
agcatagccg	gaccgaaggt	gctggagata	tagtggatac	ggtgcttctc	ttcgacgggg	180
ataagcatca	tctctacgga	tactccgagg	acagaagaac	cgctatggca	gtacttccga	240
gctgggatat	acgagatgcg	gcaggacggt	ctgcgtggcg	tggagaatcc	gagcaacatc	300
tcatcacacg	caatagggaa	gacctcagtg	gcatagccat	agcgtagcga	tggaggggcat	360
tcgccccgata	ctcatcgaag	cgcaggcttt	ggcagctcgg	ccattttatgc	caatccgcag	420
cgttcggcca	cgggcttcga	tttcggcgga	tgaacatgct	cttagccgta	ctggagaaac	480
gtgccggcgt	aagctcatat	agaaggatgt	gtttctgaac	attgccggag	gtatcaaaaa	540
gccgatccgg	ctacggatct	ggccgttatc	tgggcagtg	tggcgctcgg	ctggacatcg	600

ttatccccgcc ggccgtatgc atgacgggacg aagtcggctc tccgganana tacgtcccgt
gagccgcat

660
669

(2) INFORMATION FOR SEQ ID NO:768

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 593 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

tgcgtgatca	gtttcatatt	gcggggaaag	agtgtggagc	cggccggacc	tgtatgcgca	60
aagggagttc	tatttcacga	cttttgtata	aatcttcgtg	gcctgttcg	cttttgcttg	120
accttctttg	attggcagtt	gtttcaatat	cggtcaatat	cccgtggatc	aaggcctttt	180
tctttgatgg	ttgccagatt	tgggtatggt	cctctctatt	ctccaattgg	gtcaagtagt	240
tgtagctgct	tgggtgtttg	attcagcaag	tcgtttctca	aaacaggcaa	taaatctcgt	300
atttcttgat	cctccggcct	gaatgaagtc	ggat'tttggg	catggcctct	aatgcttggt	360
ttaggttgat	tcgtgtggtt	attcccacat	cggtttcgac	caatcattta	cggcatattc	420
gaaagcggat	cggatctgct	ctcgacttca	gaacgatgaa	aactgtggat	attcaagccg	480
attttaatat	tgcttttaat	gcatactcgc	ctaattgtgt	aatcatactt	gtaatgtttt	540
ggattagttg	caaacttata	gaaaattaag	tgtgtggcat	gcaaaatata	tgg	593

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

ggctcttcgc	gagctggccg	acttcttgat	cgacatccat	tctcagcaca	aaatctcctg	60
ctcggcgaca	gtttgtttca	gctcaatgtg	ctggatgcta	tagcggaaaa	cccgacttat	120
atgccacta	cagcaaagct	taccggggta	tgccgaaaga	aaacaaaagt	tggaagacct	180
tcgtaaggca	gccgctcgac	agcgtcggag	tatgactatt	ggcagtttcg	ttttgagcag	240
ttggaaaggc	cggctctgaa	tcgggagaag	aagctcgttt	gtaagaagaa	caggtatgct	300
gacgcatgcc	ttggacatta	aaagagagct	gggycattcc	tatgccttct	ctccgacgat	360

gagagaggac tactgtcggg tctgaacaaa gtgaagatgc tttggccacc atagagagct	420
attatcccga ctcggtcttct ttcggcagcg agtacgcgat gttcgaatag agttggctga	480
tattgcatcg atttgggcgg cgttcgga	508

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

ccttgatctc aacatcatcg aggttgatcc agaagaagtc cgtacagcca agtgacggaa	60
ggcaacatac ttagtaccgc caggcaactg taccgtcttt gataccaggt gccctgaaca	120
cgagtgccac gaatggcttc cgggtgcctaa caactgtctt ggccgtcagc acttcttcca	180
acaaagcggt ggccaatttg aagcgctcgtt acccgtagaa gatgcataca cggcatagtg	240
ctctgtgcat aattggcatc ttgtgcacat acccagaaaag taagcgttcc tccgtaggaa	300
gagaaaagctc cgggtgtaacc agatagttat cagggttctg aggccttcaa agttgatata	360
agaagccgaa gagacacaga ttgcaactgtt gtacctgcaa aagaggagcc tccgggagga	420
ggggtcgtcg tccaattggt gcgtcacctg ctgcatcgat cgtcttccat gaggcaggaa	480
taccattttc aatgattcgg aaagtgttgt tgttcccggg ttcggattcg gggtagcata	540
ggtgcatccc acttgagcgt tactttcttg ccgactgcac taccggtcgg ttctgtcagg	600
agcaaattca ttggatcctt ctaccgtaac gtctttaata ccttcggaga tacgc	655

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 521 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

tttgcttttc cgtgtgaacg tttctttttc gaccggaaaa agttccacct ttcaatcacc	60
gtcaaaccctc tccgtaccga ttcttcgaaa gaaatggatg ggaagaattt ttcttcaaac	120
cgggattggg ataagggccg atcggctgct ggcattctcta tagtaagcga acacttgacc	180
atacgaatac atacctgacc tctaagagca tcacgtgggt gaaagattct tctctgcctg	240

ccgagttgct	ttcccatgcg	taaccgtgtg	gatggtcatt	ggctgtacct	ctgctgagaa	300
atgagtaact	ccgcttatgt	ttccgttata	ggaccataca	gctcttctcc	gttggttgca	360
tcggcatttt	cacgtgtgta	tacagtcgcg	ccgcatatcg	ttgcgggttg	ttggcaaaga	420
aggcgtccca	actgctccat	aattaggatc	gccatagtaa	ggccctacca	actcgggggt	480
tgcatagctc	catagatgct	tccccacgtc	cagncgatg	t		521

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 711 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...711

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

ttgacggcaa	acatgccgta	gctctcgcg	tagttcttcg	tgatccagaa	gcatactgct	60
tggccactcc	gtatggcgat	cgggggtaaa	acggagtgtc	tcccgttggg	gcacttcctg	120
caccttgccg	aacagctcgg	atgtagagct	tgatagatcc	gcgtttcctt	ctccaatccg	180
agtattcgca	ccgcttcaag	aggcgaagcg	taccacacgg	atcggtctct	gccgtgtact	240
ccggacgtcg	aacgacacct	tgacgtggct	ttgagcggcc	agattgtata	tttcgagggg	300
cgagtggctc	gaatgatgcg	taccaaagag	gagctgtccg	tcagtccccg	tagtgcagat	360
tgatcagccg	ctcgcgcttc	atgtcccgc	ccattcgtcg	agatagaggt	gttcgattcg	420
tcccgtattg	aacgaagacg	acggcgaggg	ataccgtgca	cttcgtaccc	cttttctatc	480
agaaactcgg	gaggaaagag	ccgtcctgcc	ctgtaattcc	tgtgattaat	gccactttct	540
tttcataatc	ggaaagaccg	gattccta	attgaccggc	tcaagcaata	atatgattcc	600
ctgcaaaagt	actcattcct	cccacgataa	tgcaggagct	ttgtttttcc	tccgaaatga	660
cagtagaggg	ctgcctttgc	tgagacccta	angggatccc	catcgagact	c	711

(2) INFORMATION FOR SEQ ID NO:773

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

gggcattacc	tgctggcagg	aaccatacac	gtcgcagtta	ccgtaataac	accgaaagca	60
------------	------------	------------	------------	------------	------------	----

cctacggaag	atataatcat	attgtatcgg	gcctgactga	tggctttgtc	aaccttaggc	120
gcgcacgtt	gaaccacatc	tgctccaggg	aggaacgtag	aaataggatt	cgccgaagaa	180
tttcaactttt	ttgcttcttt	ttcttcscaga	aagaattctg	ctataacctgt	cgtgtacgct	240
gtaaatagtt	gatcgtacct	gtgttcggag	aatcgacatc	cacggaataa	ccggtatcgg	300
acattgtgaa	ttcaggatat	aaccatcctg	aggacattaa	ccaaccttgt	ctcccgtcgt	360
agtagaggca	taataactgc	tgtatgcccg	gaaaccagat	agtattctcc	gg	412

(2) INFORMATION FOR SEQ ID NO:774

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

ggcttgccag	tcgtcatcgc	actgaatatg	ttcgatgagt	tcgagaaaaa	ggcgacacct	60
ttgactatcc	tgccctgtcc	gccatgctcg	gtatcccctg	gttccgacgg	tgggacgaac	120
gggacaaggc	ctgccggaac	ttttcgaacg	cttatctcca	ttcatgaagg	acgaaacaaa	180
atcatacgtc	ccatttctatc	aactatggca	gcacataga	accggccgta	gaagctctga	240
ctgagaaata	aacaatcagc	tctctctacc	ctattctctt	ccggcacgct	atatgcagtc	300
aagctgctgg	aaggcgataa	ggagatgaat	cgcttcgtag	gcgacagccc	aaaggtcttt	360
tcatectttc	ggcccgggac	ttcgctctac	ggagatcgac	gaacatctga	cagtggcgag	420
agatgccgaa	agcattatca	cgatcagcga	tatggattca	tcgcaggagc	cctcaaagaa	480
acataccgga	cagctacaaa	cagctcaaga	ccctgaccga	tagatcgatc	atatacgtcac	540
catcgcg						547

(2) INFORMATION FOR SEQ ID NO:775

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

ggcaaaatca	ggataatcga	cgctttcgga	agagtggcat	ccgaagtctt	tgctcgtgatg	60.
ccttgctctg	caagccatgc	ctttacgcgt	tctttcaatc	atatccggcg	tggtcgctac	120

aaataccgat	tgtttccatt	gtctgagtgt	agtttgtaaa	tacagattgc	ccgaaagcta	180
tattccgatt	tggaagcgct	ttcgggcac	ccgtgggttg	ttatcagtgg	agtattttca	240
acactgttcg	tacacattct	ctgccgtaaa	gccgagtttc	tcgtccagca	cctttaggga	300
gcggagaatc	cgaaagagtt	caatccccag	acggcaccgc	tttaccacac	aggccttcca	360
ggttgacggg	caatccggct	gtcaggccga	aagcctgata	ccgatgggaa	gcacttcctc	420
ctgatactcg	gcactctgcg	acggaaaagt	ccttcggaag	gtaccgacac	gatacgaagt	480
tttacaccgc	tttgcgacgc	agctctgcac	cctcgaccaa	tgtggacacc	tcagatccgt	540
ggccaggaga	actacttcga	tattctgac	cgtattgacg	atataagccc		590

(2) INFORMATION FOR SEQ ID NO:776

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

gaaacttact	tgGCCaactg	tcgcatagct	aaagacaata	tcgctgtaaa	tctgtagcag	60
atcagatcaa	aatgctgacc	aaagagcaaa	aagaagagtg	aaaaaattcc	tctaaacatc	120
tttttccctt	atttcgtttt	caggagcgat	attatccgaa	tcggaatagg	gttactccaa	180
taggcaaggc	tgTccggtat	aaaaacttcg	gcagcctttc	ttttttaggc	aagaggagct	240
aaggaaatag	ttggtttctg	gaccaaagat	ccggtatcta	attattgctg	tccgtgaact	300
tgagggtcgt	gcgtgtcagc	gaatatcttt	cattggaatt	tgtggcctga	aaatagagat	360
tcgcctccta	taccaactcg	tttcgacaaa	gatgcagtga	aaaggaaatg	gatcggcatg	420
gttctgtatc	gatagggtaa	atatccgcta	tctttggtct	aatgatgata	gccacaaacc	480
aaggatacag	gagttcggcg	actacctcgg	caggatatttc	cacactataa	agtccagaaa	540
taccctcatg	cagct					555

(2) INFORMATION FOR SEQ ID NO:777

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 977 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

aaggcggtta	cgaagaactt	gaccggggta	gaactttttt	acccgacggg	cccgccctctt	60
ggatcggttcg	ggcttcgtgt	atggcgggcg	cgtgcatcgt	cgatggagct	ttttctgacg	120
gacagtctct	tgctgctcgt	caaagctagg	gacgcttggtg	tttcggatcg	gatgtgaatc	180
tctttcgtcc	cgctcttcgg	cgggatttcg	tataaacctc	taaaccaatg	aaacgatgaa	240
aagaaatgga	tcgatgcgct	gtgggtgatg	ggagtattgc	tcattggccgg	gtttgtttat	300
ctgcttgtaa	tcgggagctg	gacgtgcaga	cggtttttcc	gttgaagtaa	gcacgatgcc	360
ggttcccaaa	caaatacaaac	agggcgaaac	cgggaagtgc	gctgttccct	cgtttcggaa	420
ggcgattttt	ccggaacgtg	catacaatgc	gattttttca	aacggagggg	aaaggtgttt	480
tgccgatcgg	cgcgggggtg	ctctcaaac	caatgactgt	tatccggtgg	gtaagggagc	540
ttccgcctct	actatacctc	gcaaagcaaa	gagcggcagt	cgctcgaatc	gtcttcgagg	600
acaatcatgg	acaatcgcaa	acgatcgttc	tggatttaat	cacaaagaat	cggacgagga	660
taaagagcga	gaagccgggt	accgcactga	cggctccaat	aattcccttt	ttgttcttaa	720
tcaagagaag	gcgccgtccg	agaggatagg	cgttttccgt	tttcggaaa	agcgtaaatac	780
aggaaccgga	ttgcacctta	taatcttcca	tccggagctg	cttctccttc	attattctcc	840
attgggaaac	gttatttcga	acgttacttc	atcatattcg	taaatgccgt	ggatggaatt	900
acatatacgg	cttccgggtg	attacggggac	ctccgaaacc	gaaaagataa	aacagatgct	960
tgacaggtat	cttgctt					977

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 563 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...563

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

gccagaacgt	tccatccggg	gatgaaacac	gtatggctgt	gccatctgac	aaggacaaca	60
accaccccg	cctgtgctgg	aaatccatcg	aatatcgctg	ttcagtgagg	ggattcgtgt	120
cggaaaaagat	atggaactca	ccgtactaag	cgtacatccc	cctcatctct	atatactctt	180
ttagaggact	gacctaagag	actccccctt	ctcgcacttc	atatactgcg	gcaaataagt	240
accctcccat	aactgtgatt	gttacaggag	aagggtgacg	gataagatta	taggattcct	300
ttttcagcgt	ctccatccga	aaggatgaga	ggccaggggc	aaagtgcaag	ggggtggtat	360
tcgcccttca	gtcctacggg	agaagcattg	cgatgtcatg	aacgatctga	atgctgttgc	420
gagcttcgtc	caaaccgaaa	cttcaccggc	caaaatccgc	cgataactct	cggtgtgcaa	480
cttccgtaaa	ccttcactga	actcgaatga	ttcgccgtcg	attctatcga	cgaaagggtc	540
ttctctcctg	tacgcattct	cgg				563

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5800 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

gaatctttct	atctttaact	caataagaat	cagattggaa	caatgactag	atgcagtggg	60
agcgattgct	ctccgacaaa	aggggtggca	tggagcacac	caccaaccga	aacaatcggc	120
tcagccatgg	gagagaacgg	acttcgacga	gattatgacc	gcatggtctt	ttcttcacct	180
tttcgccgac	tgcaaacaag	gcacaggtat	tcccccttgc	aggcaatata	ttcgtacaca	240
atcgtttacg	cacagtctcg	aagtgaagctg	tgtgggacgc	tcgctcggca	ataaatcaca	300
cgcggaactga	aagcgcggta	tggcgaattg	ccatgggagt	cggggccatc	agtgccatcg	360
tgtcggctgc	ctgtctggct	cacgacatgg	gcacccctct	ttcggtcaca	gcggcgagcg	420
tgccatttctg	gcttatttcc	ggaaggaaaag	ggtaggggat	gggaggacgc	agtccgcaag	480
gaaggaggctc	ctgggaagac	ttcctgcact	tcgaaggcaa	tgcaaacgct	ttccgtctgt	540
gacgcacatcg	ttcgaaggcc	gtcggaaagg	aggctttgcc	cttacgtaag	tacggtggct	600
tcgatcgtga	agtatccata	cagcagcgag	atggcagcaa	ggccggcaaa	ttcggattct	660
tcgccacgga	agaggatact	ttcctttgat	cgccgaagag	cttggcatgc	tatgccgaaa	720
cgaacatccg	gtgaatacgt	tcgctatccg	ctggctctatc	tgggtggaggc	agccgacgac	780
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tgttggtcga	atcatgcacc	gggtctttct	ggatcatgag	gacgagatat	tgtccggtac	1020
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acatcagata	ttcgggtgcgc	tgatagataa	gatgatcagg	ccctcaccaa	tccggatcat	1200
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cggccgggta	cggttcgttt	ttccaagaag	aaaatcctat	gaaatagtac	tgatagggtg	1440
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ctgacggaaa	tcctcatgta	cataagttgg	acgctccgag	cggaaacggct	attacactgg	1860
ccagggattg	atagccgaat	ctccctcgct	ggacgcttgg	agactgacgg	aacaccggag	1920
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cctatacatc	cgaggtggat	cggctgacgt	atgccacgaa	gcttttggtc	gagagggatt	2040
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caagctttctg	tacggaccgc	gttcgcctat	gactccgctg	gtgtgccgct	gacgcacaat	2520
acgatgccat	tgacgggtgg	caaatcgtct	cggacaaaacc	tctcttgccg	tacaagcgac	2580
tgaagggttt	cggacactca	aggaggggga	tttgggtggc	tttaacttcc	ctgcaggcga	2640
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tgcagatagc	cgctattggg	gttcgtgccc	gaggatcata	tcgtcggtaa	gcctgtattc	3420
atctggttgt	cctgaataag	gacaagagtc	tcttcggagg	taagatccgc	ttcggtagat	3480
gatgcgaacg	gtcaatgcag	attaaatcgc	ggtatagaaa	cagaattttt	tcattggcct	3540

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gccggcagtc gttctgttgt cgcccgctcct cttcgttct tcttgttac tacctatcgt 3600
gttcgaagcg atgccatgct cccgactacc ggtccggaaa gctgctatgg atcaatcgga 3660
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caacctaaat attgtcgatc tcatthttcat gaaggaccat ccgcaataca gaccttgaag 4740
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agatctgatt atgacaactc tcgaagccat acaggcaccg ataaacggat tgtcaaagat 4860
tttcatcatt cgtttgagca tgactcgat tcccaatcgg gtggatgacg aaagcgataa 4920
agatcttgaa cggttccacc ggtaaacact ccgtccgctc ctgaccgatg tggtcgcagc 4980
cgtctgtgcc ggcaaaaaca ttcgacgact cttgaggcgg ctgtcctgct ggaaatgatc 5040
catacggaa cgtgatccac gatgacgtca tcgatatggc ttctacgcgt cggggatacc 5100
gacctcaat gcttttttcg acaatcgtgt gccgtttttg atggggactt cgtgctctct 5160
tccgccttga tgcgtgccat cgctctgaat gatatcgcat catcacgatt atatcccggc 5220
tgggacgtga gctgtcggag ggtagatcag gcagttcgag acagccgaca aagtgataat 5280
agacgaagac atttatatggg ggtgatccga cagaaaacag ccattgctct tagtgcttgt 5340
gagaggtcgg tgctattacc gttcaggctc cagtagagat tgtggaaagg tgaagagggt 5400
aggggagttg ctccgctatg ctttccagat cagagacgaa tattcgatta ctatcggaat 5460
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tttatgccga aagaaaaaat gctgaattta tagacaaagc aaagctgagt tggctgtttt 5700
ccctgactca gatgctctgc agtcgttgct tgcttggctg attttatcgt acaaagagcg 5760
aaataataag tcttgactc atctttctta aaagccgagc 5800

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(2) INFORMATION FOR SEQ ID NO:780

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

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ggcaagagcg aataagaggc aatcacctct atttattccg atgtattgaa caaaaacttt 60
ctattttcta tgattttctg ttacggagag taccgatcgt tctctcaaag gcttggttgt 120
gatctcatca agaccgaatt cgtcaaggcc ttttcggcca aaccgttgtg ataatcgatc 180
agatcttcca cgatcgacga atccccagac gattataaat acctgtcaca gctcggatct 240
tttctcacac tgcacatccg gcatcaaaag ggattctctg aggagattca attctctccc 300

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tgagccatct	caagggcttt	gatcagaagc	atcgtctttt	tatacaagct	atatcatcgc	360
cgattttctt	gccgaggata	atgggatcgc	caatacatcg	aggaggtcgt	cctccaattg	420
gaaagacaag	ccgatatgta	tccgtagcga	tagagaatat	ctgctttctc	aatatccgct	480
cctccggcta	agcccccata	ttaaggctgt	agccaagaga	actgctgtct	tcaaacgaac	540
atcttcaggt	actcgtcctc	ggcaacaaag	tcccgc			576

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

gtcttcttga	taaaaatcac	aaaaaaaaaga	tttggccgac	atttgaaagg	attgtttttt	60
ggaaaaagta	caaactaatg	aggttattcc	aatattccgg	atgacaccaa	gttcccaggt	120
atacctaata	acattgcttg	cattcgtatg	aagagaagca	ggaagataag	aagcgatctg	180
aaagagtgcg	gcgagaataa	ttgaaagaat	aattttctaag	gttcaaatagt	taattataga	240
aaggggattt	attattttta	tagattttat	attgtttgat	ttgttgtcgt	aagggatgca	300
aatattttata	ataatagctt	ttttatagca	tgatagtttt	cctatttaaag	ctgcgcagtt	360
gattcctcgca	ttcgccattc	tggttttctg	cctgaattgg	gacattactt	ttttgctcgt	420
ctcttccgag	tcaggggtgga	cagttctacc	ttttcttcga	ttggggaggt	gccatcttcc	480
gttcaagccc	aacggagcga	aacggaattc	ggatcgggtg	cttcctctcg	tggctattga	540
gatcacggga	tgatagacga	atccat				566

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

tcagggattc	ggcagcgatc	ggaccgatcc	tcggatgtac	tcctctccaa	caaaagtaat	60
atatcccgtg	ctaagccctc	ccatttcgct	cttgatagat	cgatacgatg	aaagagatgc	120
gtgcgcatgc	aaggagttgg	tgctgccttc	cccagcttg	atctccggat	agcaggggct	180

taagaaaagg	aaacgggtgag	atcgtgaaag	atgaaacacg	aaccaaaaaa	cgccggggttg	240
cggttgatt	ttctgaaaaa	gtggcgtag	atctttttcg	ctgtggcgcg	taaattttta	300
cttcccgaac	caaaacgaaa	aaattctcgc	gccacgtttt	tggagcatgg	aatgagaaaa	360
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gggacaggct	gtcggcatcc	tcttcgctga	aattgacaaa	gagcagctgc	gtacgggtcag	840
cttctcggca	gggaagagg	cgagctgcat	catcacatca	taatacggtc	tgcaccgaaa	900
gaaatgccca	caccggacat	tccctccaga	cgaatatgcc	ggtgaggttg	tcgtagcgac	960
caccgcccgt	aatgctgccc	tctcggcgtc	gagtgccttc	acttcgagaa	tgg	1013

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

tgcatacagg	taaagaaatt	gccgagcaga	tcaacatcct	cggtgatgag	gtgtaccgct	60
tagctaccac	gtagtcttct	ggaaagcaga	attgatcgct	ttgtgatcct	tcagcaagat	120
gctttcgacg	atgtcgattg	caacagccgc	tcgagcgtca	ggagctgatg	ctcagcagaa	180
taacggacat	ctgtcgacgg	aattcgattt	cgaagacttc	ctcgaggttt	cggactattt	240
caagcaatga	tcaataacct	caagcaggtg	aactattctc	agttcaaaaag	tgctaatttg	300
acaaatacaa	taaagagttg	gacgctattc	tggccgaacg	cataaataaa	ttaagatagt	360
tatgtcaaaa	caaagctttt	cagaaaaatat	atcgaagatt	accaatatca	ccaaggcaac	420
ctgctctttg	cgtgccaccg	ggtgggtaat	gaagagttgg	ccactatcga	cggccgattg	480
gctcaagtgg	gcgtattcag	ggcgaagatg	taaccctgca	ggtatttgcc	ggtacggagg	540
gattcccacc	gatgccgaag	taatcttcat	gggcaaggct	ccctcgctaa	agtgggagat	600
cagttggccg	gccgtttctt	caacgcttat	ggcgaactat	cgacggaggc	ccccaaccgg	660
aaggaaaaga	agtggagatc	ggcggctcgc	cgttaatccg	gtccgctcgt	agcagccttc	720
agagctgata	gctacggtat	cgccggtatc	gacctgaaca	atactttggt	gacgggacag	780
aagatccttt	cttngg					796

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

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agcgtggccc gaatgctccc atcagaatac cgatgatgat agggccgccc ctaatcccag      60
cttgataggc atactgacac cgggcagata gaaggggaca tgccgaaaac acatcccaag      120
acaaggcctc cgaacaaaagt ggtcaaagag gattgtccaa ctgtttgacc tcatcaccca      180
aaatctcggc cacacgtcta cagccttgcc ttccgcaacg acggtcaggc ggtcgcccac      240
ctgcagcgaa gatctctatc cggcagcaat tctactccgg cctgtccac acgatgatat      300
tgaccccata caggttgccg attttcagca tgccgaggcg taccggtga gcttagggcg      360
agttattacc agcctgcgtg atacgagctg ttgtccacac tgttccagtc tatatcgga      420
cggttccaat ccttcatttc ttcttgccga agagtatttc gagctgtgag gtatcctctt      480
caccggagac gcgaggatgt gatcgccgaa atagaggatc atatcagagg tagggatctg      540
actttaccgt tgtgccagac ccgtgtaatg acgaaagggc gcttgagcgg agtgctactt      600
cgcgaaacgt tttgccatcc aaagcaggat tgcagattca tactcggaga agaaagcttt      660
gggagcctcg gaatcgtctc gttcctgacc ttgggcatca taactttcag cagggccaaa      720
gcaataataa caccccaacg cccaaaggat aggtaacggc acaggccaga cctttttcgc      780
ctattcggcc gtggcatcgg gattgatctg atggagggtc gtttgggctg caccaaagca      840
ggggtattgg tagtggcacc ggccacgata cccatcagat tggcatggaa atgccaagga      900
tataataaag gaggatgcac aggagaaatg tagtaggact aatcccaagg agataagatc      960
tggcaatgcc

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(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 817 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...817

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

```

gtcgtacaat tctgaaaat agtcggaagc atagtagata ttgccccagg gaagccaagc      60
cattctatat cttctctgat ggcattccac tactccactc ctctttcacc ggattgggat      120
cgtcgaagcg caggttgtag acgcccgcga tcgctgagct atcccgaagt ctatgcagat      180
agctttggca tggccgtatg gagataagcc gttgggttcc ggaggggaaac gtgtctggat      240
tcgacgtcat tcttcccttc ggacaggctc gattccacaa tttgttcgat gaagtaagac      300
tcttcttttc ctctatgccg ctgttcttat ttctgttcat atcatccgtc ttgcttgtcc      360
ttatttacat tagtgaacaa aggtaatgat atgggacata aaataatcac ggggcaatcc      420
gctcaagcag gagccaatgc cagtttgtct gtttggtacc ttgaatgatt gtgtatgaca      480
acgaaacggc taaggacgat tatgacggag tgtcatcatg cgcaaattac tgcgttgctg      540
cgacattcgg cttcagtcgc gtacttgtaa gttcgtcctt ttctacctag tcttagtacc      600
ttgtacttta cacattcttg cacacccaaa aggggctcga caaaaccgaa ttttgacaca      660
gccccaaacg aatcagcgtt caacgggaga gacctttata tccgcgcgct aaatcatttt      720
tccttctttc ggctagcttt ctaaacagcc ccttcttggg cataggcctg ttcattctcc      780
tctcgatgaa cctgggatcc tgaatcacia tagcgtt

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(2) INFORMATION FOR SEQ ID NO:786

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1137 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1137
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

tatcaattct	tcccgaatct	attcataact	tcacaagcca	atcgattttc	cctttttgca	60
acggcaagca	aacggttagt	tcatgagcca	ggcctgtccc	cgaatcagtt	cggctgtgat	120
ttgtttccca	ttgagtgtta	catatatcca	ttgccgaaag	tcaggtggca	tgccacggtc	180
tgttctctat	ccgataaata	tcctgcacca	gcagacagga	gctaattctt	ccccaaggct	240
ttttcccact	tgtcctacag	gcatttcttc	ccaccctttg	gttaagggta	gaggatggag	300
tcgcctcgaa	ggatattgtc	tggaaatcata	ccgaataccc	caccacttgc	cgaacatagg	360
gtttgcccc	tgacaagccg	tcgtgcgaaa	tcatacttcc	tctgatttgc	ctccttccaa	420
tgtaatttct	cgttcctccc	tccgacagaa	agccgtagt	tcttgccggc	ttccatgtcc	480
gtatatataa	agcacgcgga	gcagaaaccg	cttgccactt	catgcccggt	atactcttga	540
gcccgtatag	tagtcccagc	agctatggcc	gtatatccga	gagctattgc	catatgcagg	600
ggatagcctt	gaggtcggcc	tgcgagtaca	aaatcgttct	gtcaaaaagcc	aaagccagca	660
caagaaaaga	ctcaggcata	cttgacgcat	tcggatacga	acccccgtct	tgcgaaatgtc	720
catattgagc	ggtgagcggt	ggtcaaatgt	ctcacctcct	ccaaaaattc	tccattcacc	780
ggaagaatac	ctccttgccg	gccatatccg	gacgaacaaa	cagataaaagc	atgaatcacg	840
aaccgaaaact	tcgccaaaag	gcaagagttc	aggaaaagga	gacgttccgt	accgtaaata	900
ccttctccat	acatatcgag	aaattcgccc	aggttcgcag	cacttcggat	tcataaggca	960
atatggagcc	attgccttca	gaccgatgtt	cagcagataa	ttacccccac	gacacaccac	1020
tcgcaccaat	cttcgaactt	ctcgcyagct	ttgtcccga	tagagcctct	ctcctgacctg	1080
agcgatagcc	ccatgtctca	gggaacatag	atgccgcctg	ctgccaagat	ggcaatc	1137

(2) INFORMATION FOR SEQ ID NO:787

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 960 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...960
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

acgcgagttta	ttacctctcc	gaagcaaggc	tgtacataat	cgaattgagt	gtaatacagc	60
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agttgccaat	agctaagaag	tatttgtcct	tattagtgg	gctttcagtt	gagaagtagt	120
cagaagtgg	tcagcccatg	cggctctgat	ccatgcgctg	tatagtttgc	aaagctgact	180
ccggtattca	aatgacgtag	caacctgtat	aaggggcttt	gagatagttg	tacacgtcgg	240
tataacatgc	tcttgggtgt	agtagtactg	cataccgtat	ttaatgggtg	gctgcctacc	300
tgggaattcc	agctataatc	tgcacctgca	atcaagagaa	cttctccaaa	taactcttat	360
ctggcatagt	agccttttca	tacatcaata	cctatcaatg	atgttcgtca	gttcttctgg	420
ggaagaagca	gacatacgg	agtatacatt	tcagggaat	agtcgccatc	gactgcactg	480
taatacaagt	ggtaactttt	tttgttttct	ttccttttct	tccgctaata	acgtcagtgc	540
accaacccaa	gccaagaaga	ccggagcagc	actagctgcc	aatccatctt	gtatttcttg	600
tgaataaatg	ccttgataga	ggcgtttgtc	gttcctattc	agcttcgtct	gtgtaatgca	660
catccagata	gaagcccttt	tgagcctcca	agtgcgcaa	ggcttgagag	cttctttgaa	720
ttttgcacct	gcaacacaag	catacgaacc	ggcgtattat	acaagtcgcc	atgatctgta	780
taaaatctct	attgaagagc	tgtttataag	ctgtttcgaa	ataagggcta	aaaaagcatc	840
atacaaacgt	tgtgtagcta	cttcatcagc	tccttgaaag	ctacttcaat	ttcgatgttg	900
tttctaacct	tcaattgggt	tgcaaccaca	tatactgaac	aggattaatg	gtaagagctg	

960

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 405 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...405

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

caaaagctta	gaaaggattt	cccccgata	aatatagtag	gataccgagt	ggctatctta	60
agggtaacga	tgatgaagtc	ctgattgaag	atattgctct	aaaaagcccg	atgtggtctt	120
tgtggccatg	gggtctccca	agcaagactg	ctgatggagc	gtatgcaaag	ggtacaccct	180
aacgctatct	atcaagattg	ggcggtagtt	tcgatgtata	tacggggcgc	cgtagagcgt	240
gctccgagtg	gtggattcgc	cacnatctgg	agtttgccta	tcgcctttat	caagaagccc	300
agtcgcatca	agcgtaaga	tacattttaag	ttaccgattc	ctgttagagt	atttaaccca	360
atagnaatat	aaatttccat	tgaaaaaaaa	gtgatgtttt	ggtct		405

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5344 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
 (B) LOCATION 1...5344

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

caggttttcc	tccatgagaa	gagtggcact	ccgatcatgt	tctcgactag	cgtgtcgttt	60
acaatacgc	gaatgagaag	atcaatgggt	ttatgcttgg	cgtatgttcg	agaaagctaa	120
ggatgggct	tatcgtacga	tgggcgaatt	atccgatcgg	ccaaacaggg	gatgctcagt	180
actgttttcc	ccgattgatc	aaccagttga	gtttctttct	gatgggtgat	ccgtccgtgc	240
gtatgatctt	cctacccaca	aagtgcatt	gaccgcaatc	aacgggcagg	atccgaaggg	300
cagtatggaa	ctattatgct	caagtctttg	gaacgggtag	ctcgaaggg	aaggtaacccg	360
atgaaaagg	gacattcgac	gagacattca	gtgcaagggt	ttcctgaccg	tcttcgatgg	420
cagaaaagaa	atgacagctt	tgaagaggag	ggaaacgatc	tctctcttgt	atattatgac	480
tatcctaacc	gatgtatgcc	ggtattgccg	aggtgaaaga	cggactcttc	gaaacttcgt	540
tatcgtaccc	aaggatgtga	actattccga	gcacgaaggc	cggatcaact	ttatgcttat	600
aacgagagca	caaaggcgga	agccatgggg	gtagactctc	catcagagtc	caaccgggta	660
ttcctgatga	ggtaacggaa	gataatcacc	gcctgaaatc	ataagctgct	tcctcaatga	720
cagtacattc	cgatcggaga	tgagggttaat	cctactcctc	tgtttatggc	cgaagtattc	780
gactgaatgg	aatcaatatc	acgggtagcg	gagtagggca	tgatattacg	cttgatcga	840
tggcgtgccc	gacctgacct	acaacctcaa	tgcataattc	acagttcggc	tactgatgca	900
gggtggggca	ctattctctt	catgataccg	gtttggccga	aggagatcat	actgcccgc	960
tgacggtttg	ggacattttc	ataatgccgt	ccatcatgac	ttttcattca	gagtggtaga	1020
tggcattgcc	cggatgtggc	tgatgtgatt	ctattcccga	atccggtacg	cgagagtgtg	1080
cgttccgaat	cttcacacaat	cgccccggaa	gcgatttgaa	cgtggcctgg	agatctatga	1140
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cctatagaga	tcaagtggga	tctgactcca	aatacggagt	gaagatcgga	aacggattct	1260
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gatgtggtag	gacaatagcc	gaagcagttc	tgccgtttac	gatattgaat	atcatagacc	1380
ccgataagaa	tacaaaacaa	aacgaacgaa	atatgattat	cagaaaatgc	tgaaaaataa	1440
attggccccc	ttggccatac	tgttcctttt	gctccaaaag	ctatgaaggc	tcaggagcaa	1500
ctgaatgtgg	tacacacctt	gtgccatcgc	tgaatatacg	tccggatgca	cgtgcggccg	1560
gtatggggat	ataggtgtgg	caacgacggt	gatgcgtatt	cncagttatt	gaatccggta	1620
aatatgcttt	catggatagc	aaagccggta	ttagcttctc	atatacccct	ggctgtccaa	1680
gctggtcaat	gatattgccc	tgatgcagat	gaccgtttct	acaaattggg	aacagacgag	1740
aatcaggcta	ttagtgtctc	tctggttatt	tcacattagg	aaagttggag	actttcgcag	1800
aattggggca	atcatgggag	aggcccatcc	caatgaattt	gctgtcgatt	tgggctatag	1860
cccagtttgt	cggagaactt	ctccatggct	gttgactcgc	gttacatccg	ccagacccaa	1920
gcactcaga	caccggagag	aatcaggccg	gaaatgcctt	gcggcgata	tagccggtta	1980
tttgcagaag	tatgtgtctc	tgggtaatgg	gagagcttgt	ggctgttggg	tttcaacgta	2040
aagaatatcg	gaacgaagtc	tcctatgacg	gaggtgtcac	gagttttttc	atccctactt	2100
cgttgaactc	gggacggggc	tggtgtatcc	gatcgatgac	tataacagca	tcaattcaac	2160
cttgaactta	gcaagctgct	tgtaaccact	cctcctatca	tggataaaaac	gatcaggccg	2220
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caaaggcaat	ttgcagtact	tcacggcccg	tgccggcttc	aaaatgaaca	attccgtatc	2460
gatgcttcct	acctgttgte	tacgatccag	agtaatccgt	ggatcagact	ctgcggttta	2520
cgcttgcttt	cgatatggat	ggattgcgaa	tttgttccac	taaatcaaga	tgaagaagcc	2580
ttttcgaata	ggattcgttt	cgatgtacac	cgcttgctcc	aaggttatcc	tttgtggatg	2640
ggcgggttcg	tctggaacat	tccaagggtc	tggagggaca	ttccgatgcc	gatgtctcat	2700
tcattgctatt	tgatgatgcc	tgctgggtgc	tgccgctttg	cgtgtatcgg	ctatcacttt	2760
cctccttcgg	atcctcaata	taaggggata	gatgtaagat	cctgttggct	cgcggttatg	2820
aattggtgcg	ttcacagggt	tagaattggg	taatatcgat	gctactattg	cggcggaaca	2880
gccccaaact	atccacatat	accggatatg	cagcgtgtct	tggctgaggt	gatacagggtg	2940
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ggaaggcatt	tcgcctatg	cgtggcctat	gctcattgtg	ccgtctgaga	ctaaccaagt	3060
cctaaaagat	tagttgcaaa	gaggttcttt	ctctcaaagg	tttggtctct	attccttaga	3120
cagctctttt	ttcccccttt	cggggggtatt	attttttcag	gaggggaagt	agcggcttga	3180
ccagtgccag	atgacgatcc	ccgctgtgac	acttacattg	agcgaatgct	tcgtccgaac	3240
tggggatatct	ctaagcagag	gtcacagagg	tcgatggctt	ccttcgtact	ccttttactt	3300
cattgccaaa	gataagggcg	tagcgtgtgc	ctttgagggg	gagaaatttt	ccaaggatag	3360
gcttctctcc	gctgtttcta	tgacacagata	ctatatcctt	ttgctttcaa	ttcttctatt	3420
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gtgtatgtcg	ggatgaggtg	gccgagctgt	gattccgcac	aagcatagcc	ttctaaccga	3540
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tgatcctgat	aggtagcttg	gggcttcgtg	atattcttct	gttttgagtc	gctgtatttc	3660
gatagtcttt	tttttcgcat	gtctgttgtc	tggtcggatt	gagtgatcgg	tgacacattcc	3720
attacaaatg	caacgaattt	ctaaatatag	gatgaaaacc	ttgaatggcg	ttcgaagttc	3780

agtttttttc	gagtgcagat	cccatgtata	agtgcacat	aatgtaaatt	tagcaagaag	3840
cactcgaacg	gcggttctgaa	tccgagtttc	ttcttggtg	tagttcagtt	tgttctgtat	3900
aatggaaatc	tggttggtcg	tatatcgatg	aaagaagaac	ctttagggat	gtattgtcta	3960
atcaggggcat	tttgctcctc	acagagcaaa	accctcttgt	ttacacgaga	ccgaaaagag	4020
ctcaagtata	agctgtcttg	gatgcattag	ttagagtgat	tttctattct	gacaaaagtc	4080
gtcgaacgat	athtagtgtc	agataacggg	aaacagtggt	tggttgccga	aaatacgtat	4140
ctttgcagcg	caattgaggg	gaatctctcc	gttgctatga	ggattgtctc	atgggtgtaat	4200
ggtagcacia	caggtttggt	tctgtttgtc	aagggtcgaa	tccttgtag	acaacaacag	4260
agaaggggtg	tatcggatag	tgaaacttcc	ggattgcaac	cctttctttt	tggtcttata	4320
tccccccctt	aaattaccgt	attactctct	caacttggtc	ctcgaatttc	tgcaacgaag	4380
cctattaaaa	gcgacctata	agtcaaaagt	ttggcaggat	tgcttgatag	tctttctgtg	4440
gagtggtcag	accgacggct	gtggtcgatt	ctgtcggatt	tggtatat	ttgaggaaac	4500
gaaaaatcgg	ttatgctccg	taaaactctt	tccactcctt	atgatataat	tccccgacgg	4560
atttctctgc	cgatgtgctc	cgtctggaag	gtgcccgcct	cgaggcgccc	ggcggcata	4620
tgcaccttat	agtcgctttt	cgggtgggagc	ggctgtttgc	tcgacaatgg	ggagatcctt	4680
tcaggcagca	atcaggagaa	tgacactatc	cgcccggaat	atgtgccgag	cgtagcgtgc	4740
ttttctatgc	cgggccagat	atccggaggc	agccgtgaga	gagatgggtc	tcgtggcttt	4800
ttcgcttcgg	gacgtgtgcc	gctgattacg	ccgtgcgggg	cttgccgtca	gtgatgctgg	4860
aggtttgtag	tcgccatcgt	ccttttccca	tcttgatggt	ggggaagagg	aggctgtcag	4920
agtgtcggat	gtgcgtctgc	tgctgccctt	tctttcgacg	gtagcgactt	ggaacgatag	4980
tcttcgtcct	ctattcttat	gtgagttcga	tataaaggaa	tggcacaaca	cattgggtat	5040
tagtgtgttt	attttccaca	cagtgttttt	caggcactta	tattgctttc	agatgggttt	5100
tatctacata	tgaagcccaa	tgacttagaa	gccgccccct	cttccgatca	ttatgcagcc	5160
ggagaatcac	aaaagagtat	gatttacagc	tactgttatt	tttatgggat	gttcgcttag	5220
atcgaactgg	cgttatatct	cgtcccgaat	ggtttacacg	ccaaaatttt	tgcgcttggt	5280
gtcgctgaaa	actggcgtag	aaactttttg	cttttggcgt	gggaagtga	aaaattacgc	5340
gcac						5344

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

ggacaaagct	accggacgca	tcataccgga	tctgatgtat	aagcattgga	cgagtgggtg	60
gagaccatac	cacatccctt	catcggaac	gcgacggagg	aatgatcacc	accggcaaaag	120
acatcatgga	gggcaaccc	tacgaggtcc	gatgaaaccg	tggtcgggta	tcgaagattt	180
cagttggagc	cctgacgaca	gaacatagca	tacgccaagc	cgcaagaaaa	cgggcatggc	240
atatttctgt	ctaccaactc	ggacatatat	atctataatc	tggtctccgg	ccggcgacaca	300
acatttccga	agggatgatg	ggctacgaca	cctatccgaa	gtagcccccg	acggcaagag	360
cattgcatgg	atcagcatgg	agcgcgatgg	attgaaagcg	atctgaagcg	tcttttcgtg	420
ggcggatctt	gccacaggaa	acgcacccat	gtaaacccac	attcgattac	aatgtggata	480
tgatccaatg	gcaccggaca	gtaagggtat	ctatttcctt	gcctgtaagg	agcagagaca	540
atctggggga	gatcacgctt	gaaaa				565

(2) INFORMATION FOR SEQ ID NO:791

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 618 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...618
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

tttccgacct	tttgcccca	tattccgcag	gtctttatcg	aaagaaagct	ttacactggt	60
tgccaactat	aagaggtagc	aaatcagtag	tttagaagca	ttacgagcac	tcccatacctg	120
tgcagagtcg	agatcattgt	ttcttagcaa	aagtacactc	tgaccgacaa	cgtcaaaaga	180
tatagagcct	tagaaacctt	tgattaggct	tgattttccg	catagcagga	gtggacgaag	240
ctatgcggtg	cgaatgacac	ttgtgcccc	ttaccaatcg	gcacaccact	cggctacgca	300
tactcgcatc	ccgatgccaa	caaactcgaa	ccgccgaaaa	aagaatcggg	caccttcctc	360
ttcgacaaaa	acacgaacca	taaattggaca	aacatgggtc	gtgaatttcg	agaaaactcga	420
gcctaaaaat	tattcttttg	gtcgcaaaaa	tttcacttct	caaaccaaaa	gcaaaatttt	480
cccgcgccac	tttttcagaa	ccacggatca	caatcttttg	gcaccacaaa	taaaactctg	540
gagccatcgg	tctttttatc	tcagcaagga	tggtaaaatt	cgacccgata	caacaatgcc	600
ctaaaccttt	ttcggctt					618

(2) INFORMATION FOR SEQ ID NO:792

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

ctttgggcta	aaaagatcaa	aaggctggtc	gatttttgtc	tcgcattgat	tttttagcta	60
tttccctgcc	ttttatgctg	atcatagctt	tgatcatttc	ctgcaagacg	ggggggctgc	120
aatcttctca	caagaacgca	tcggtctgga	ggaaagcctt	tcatgctata	taagtttcgc	180
tcaatgaagg	tgaatgagaa	gccacaatc	agcctcagct	attccagaaa	aatgattcga	240
ggctgcaaag	ttcggtcggt	tcctgagagc	ttctcacttg	gatgagttac	cccattctgg	300
aatatcatca	aaggcgatat	ggctatcgta	ggctacaggc	ctgaagggaa	tattacatct	360
gccaaataat	ggaaaagaat	ccggactacg	cctactgtac	gaaataaggc	cgggtctggt	420
ttcctatgct	acgctgacaa	cgctatacgg	atcagatagc	aaaaatgctg	gtgcgtctgg	480
agatggattg	tatacttgca	aaaatcagtt	ct			512

(2) INFORMATION FOR SEQ ID NO:793

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

attggatcga	tacgagtatc	ggtggcaata	tcggattcta	tatggcgaaa	atagtctgag	60
cggaacagaaa	gattctcgca	catacgattt	tggcggcatt	atcaagttgc	cctaacgctt	120
ccctatggat	tccgtatcga	cagcgatttg	aatacaatac	gaactccggt	tacagcggag	180
gattcaagtc	tggacgatgg	ctttggaatg	cttcgctttc	atacagcttc	ctccgtgaca	240
aggccgtaca	ctgcgtgtca	atggctatga	catcctcggt	cagcgggtcaa	gtatagccgt	300
tctgcttcgg	ccatcaatat	agaagagagc	atgtccaata	cgacggacgc	tacgtgatgg	360
tggactttat	ctaccgattc	aacgccttca	gtgtgggtgga	tctcgacagc	atcatcagcg	420
tggcaatatg	aatcgtccgg	gccacctttc	ggcgggtggca	gacgaccgtc	ctgatcagac	480
gccacctatc	gcaagagaca	aagtgtgtaa	gtgtttttat	aacgaaccga	tcgagggggcg	540
tgtcaaaaatt	tgattttgtc	gcagccctct	ttctttgtct	cttgacgtgg	ttaggcaacc	600
ggcttcatct	tggaggccct	actttattag	cttttcgaga	catagaagcg	aatcaggcta	660
agattgtatt	tattctgtac	agacacgaaa	aacagtcaat	tgacaatgaa	atcttcccgg	720
aaaatgccat	gcgacatctc	atctatcggg	ttaacagggt	cacacggaac	ctcccactcc	780
ccgacctgcc	atccgacaca	gagcagatag	catcttccat	caatagacca	tagatcctct	840
catgtgagac	catagtatcc	tctcatacga	gaccatagta	tctctcatgt	aagaccatag	900
tatcctctca	tgtaagacca	tagtatcctc				930

(2) INFORMATION FOR SEQ ID NO:794

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

gggcacgaat	gacacgggta	ttattcctga	ccagcatact	gcccgatgga	gtacttccga	60
taattgggaa	aatacggcat	cttttatctc	acccttgat	aaacgagcaa	tttacaggca	120
tcgcgctgtg	gcaaagcatg	tttggcattc	gttcttcggg	caatggatag	tcgtagtcgg	180
caatggaaat	atccgtgtcg	taatcatcgt	ggtatgatat	tttgcgcggc	aaaattagca	240
aatacatggc	cgaacatgct	cttttctgag	tgtactgatc	ccattcgaga	tgttaaaatc	300
ggatttctac						310

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

gaggaagaac	caatccctct	cggaaaacct	acactcaacg	aactgatggc	aaccactgg	60
aaggaggaag	cgaatacatc	gaactataca	accctacgac	aaacctgtcg	ttccctctaa	120
attcgccata	ggcatactcc	gcaatggagc	tacaccacca	caactgcact	gccgactgta	180
gccgatacac	tctatcgga	caatacatcg	tctttgccaa	gaagagtgg	ggagtcactg	240
acttcacccc	caagcgcaaa	atgttgctac	gatgagcaac	ctgcctcagc	tggcaataag	300
ggatttacga	tcggaactgt	cgaagaaggc	cttgatcaac	ctctgaagaa	gtggtctatt	360
cacctaaaaat	gctcggagaa	ggaaaatgta	acagacgagg	gggtatcact	ggagccgtat	420
ctccttcgag	actccggatt	cgattccgac	caactgggca	ggcggactcc	atcggcaggg	480
atatgctact	cggctacctn	aactnccaat	cctcaatgca	gatactccca	gtagggctac	540
caataacgaa	acagaagcaa	cggaaaagct	acctgncacg	gcagtatacc	gaagaa	596

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2205 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

aagcgggtgtc	gaaagctcga	tgatgcagct	tcctatcgtc	ggatggacgg	ctgatagcag	60
cgtattccga	tctccccgat	gtaatcggtg	tggaggacga	cgagtgaatg	cctattgtga	120
tgaagaggag	tatgtatctg	ctctcgactg	tgcaacagnt	atctgtccaa	gtatccggag	180
gcttcctcgt	atcaactgct	gaaaagctct	cgggcttcgc	gcattttggc	ttctttcgtc	240
aagtggacta	tccctccgg	ctgcatacac	gcctnccgaa	gagcatgcgg	atcgatcgcg	300
caatgtcggc	tccgtcctca	tcagtctgna	ctggctggat	atgatggctc	gcaagctgct	360
gatataaggc	aggaaggatc	tgcacttgta	tggaaaggaa	cacctttttg	gaccggaaag	420
cattcggaca	cagggccggc	catatgaaaa	tggattcgat	ccgctgtaca	cttccggatc	480

tgcccaaggg	gtctatctgg	tgaagcctc	ggcagagcag	tgtgtactcg	aaaagaccag	540
ccggtgcccc	aatacagtct	gctccatgta	tcggatctct	tcttcctcct	cagcaggcca	600
tgccgggtgt	gcaggtactc	gatgcgctga	cgggcaaccc	gtggaaggcg	catcgggtgga	660
tgcttccatg	cgttattcta	tagaccatcg	gttcataccc	tttctcctac	ggatcgggtat	720
ggtcggatcg	atctgcgaaa	agctacaatc	gcttcctccc	ctataccgac	ggtgaccgct	780
cgtacccggt	gtttctgcct	atacctacaa	acaggatcag	gtggatcttt	ccagaagaat	840
gagcgcaagt	atatcgcttc	cacggatcgc	gccatctatc	gtccgggcag	aaagtccatt	900
tcttcggcca	gtgcgaccgg	ataggttatg	cgtggaggac	gcacgcgcca	tcggtggatc	960
ggaagttaa	gtcgtgctgg	agatgctaac	tccaaggaga	tcggtcggct	gctatgccag	1020
gcagatgagt	gggacgtttc	tccggtagct	tcgacctccc	gacagggatc	ttgaatggct	1080
gttcggacta	cgagtgggag	gggatacata	tccctttagt	gtggaaggta	caagcggcct	1140
acattcgaag	tcggcctccg	gagtcocgac	gctgcaatgc	tatgggcgac	accctccgca	1200
tacgaggcga	agccaagacc	tttacggaat	cggatgcgca	ggagctacgg	tgaactatcg	1260
gctgagcctg	acccctatac	gcgtcgggtg	tggggtagac	ctgtggccga	tagggtcgta	1320
cagccgggtga	ggcagtggta	gatgaatcgg	gttacttcgt	catacctgtt	tctgtctcgc	1380
gccggaagga	cgggaagact	attcctactg	cctctacacg	catcggcgga	tgtgaccgcc	1440
cccgggtggc	agagcgaggc	cgcctgactc	gaatacccg	gggaaaagaa	cccaagaggg	1500
tggacgtcga	agtgggtaat	acattcgtgc	caacgaagac	aactggcttg	ccacctctct	1560
gccggatcga	cattctccct	taccaatact	tccggacaga	cgggtggagg	atccatccct	1620
acttcctgtg	cgatgccgac	aatgaacgta	tcggtcggct	ttatacgag	cttcagggtg	1680
ggtgacgcct	gctccggccg	aatggggcaa	gttgcttcgg	gacagtaccg	attgcgtttt	1740
ggcgagagtg	gcggagagga	ttccactttg	ttacgaagga	cgtttatctc	ttccgtccga	1800
aagatcgta	gtttcgaatc	cctcccaagg	cctttggaca	tatgtggcgg	aggagaaata	1860
cgcagtcacc	gccctgcccc	catcctggtc	ggtgctactc	ccaaggatgc	gatgctcagg	1920
agttgtatct	gttctacgac	ctgactcagg	caggccgatt	atcgaaagga	agatgatcgc	1980
ttgccggccg	ggtgagatcg	tcgagatagg	ccgatgcttc	cggcagctcc	gttgccggag	2040
agtatgaatg	tttctctcat	tatgtatatg	gagggaggct	gtatagtcga	agcatagatc	2100
tggaacgaga	ctgccccagc	gagagataaa	gatgtcgtgg	agtactttcc	gcgacagctc	2160
cgaacctggtg	agaaagagac	atggaagctc	cgtctcgcgc	atgcg		2205

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

gcatggcttg	ttttgacctc	tctgcggcta	tggggggaga	ggctgaaacc	gacaatggct	60
gcgtagcggg	ctgatgcata	ccgatcatat	acattatagg	tgggtggata	taccctgcat	120
ggaggactgg	tggccgatgc	cttactcgct	ctattgtccg	tggcaaaatg	gataggagcg	180
accagtncaa	actctaaata	gccttacaaa	ccctgatgat	tacgcttgat	ttccggcata	240
gcagggtgga	cgaagctatg	ccggtgcgaa	tgacacttgc	gcccccttac	caatggcaca	300
ccactcggca	tacgcatact	cgcacccgga	tgccaacaaa	ctcaaccgcc	gaaaaaagga	360
atcgggcacc	ttcctcttcg	acaaaaacac	gaccataaat	ggacaaaaca	tggttcgtga	420
atttcgagaa	actcgagcct	aaaattattc	ttttggctcg	caaaaatttc	acttctcaaa	480
ccaaaagcaa	attttcccg	gccacgtttt	tcagaaccac	ggatcacaa	cttttggcac	540
acaaataaaa	ctctcggagc	catcgggtct	tttatctcag	caaggatgta	aaattcgacc	600
gattacacat	gcctaaacct	ttttcgctag	gcattgtata	gagtcatggt	ttc	653

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

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ccacccatgg gagagtagtg agtgcattct tgaacatctg ttcgaaacca ggaacttcag      60
gatagagagg ttcactgaag gatggaaacg gataccgcct tgtacggacc gatggcattg      120
ttgaactgaa cgcggtagcc gatgtttcct gtaccttacc ttggtcacat acccagggta      180
cacggaatgt gaataccgat ccggctctac gatacgctcg atgataccgt tcttttcgaa      240
ctcggatgtt ggttgtagac ttctttctaca gagagaagaa cttccttcac tgctggagga      300
attcgctttc gccgggggtgc ttagcctcca gcattgtcat aattcctggg tcttcataga      360
gaactctaaa taatagtaag agattactcc ggaaaagtag ctaatgtgtt tggaactttc      420
aagccttttc tcaaaaataa atttagtaag atccttgtag tccaaatcac aaactaacc      480
ttccgaatat agctttttca gtacataaat cagtatccga atacgtcgcc aaaagattag      540
tatattgact tgattcaaag gcagcatgca tcatgtggtt aatggaggcg ttgtcggtat      600
cgaagcctcg ccaaaacgca taccgaaaca tctcacaagc atagccttta atctctatct      660
cattatatcc aaatgtgtct cggatggcga acactcaccg gccggccttg tttttgaggt      720
cggaccgatg gataagggag ctttatcatc ctgcacagtt accatcctac tgtgaaaaaa      780
tgacctgaaa ggggtgattct tgataacctc ctcttttttc aaaggtctct cataatttat      840
tgatgtgcac tgagttactc gaaattggcg aataaaaaaa gcctagtttg tgaaagttgg      900
aacttcatcg tattatgagt actgaaaaga tggggctgtg acaaaaaatga attttgacac      960
agcccccatac atgagtatct gccgatcgat atatatccga aagaagtcgg tatcggcagc      1020
taaaaagacg tttacttgcc gtagcgagct ttcagtatct ggatcatatc tgcagacagg      1080
aatcgagatc gtaatccggc ttccaatccc attcactacg agcacaaaaat catccaatga      1140
gtttggccac gattcggcaa taccttgacg aagaggtcga cttcgtaatt cataacaaaa      1200
tcaggtaacca gcttcttcac tgctgcgcta tctgcgaggg ttcgaaactc atggcagtg      1260
tgttgaacga attggatgta ccagacgggc agggtcagct tccatcagct ccacgcatgc      1320
acgagagcat cgggcatata catcatatcc atataagtac cctctttaat cgacaagtga      1380
agcgctcctc tttgacagct gcataataaa tatccacggc aagtcgctcg ttccaccacc      1440
ggggagggtg acgttgaga tcaaaccggg aaacgaaccg aacgtgtatc tacaccgaaa      1500
cgcttggtggt agtagtcacc aaaagctcgc cactgacctt cgttactccg tacatggtct      1560
tgggacgcga atagtatcct ggggggtcct atccttagga gtatcattgc cgaaagcccg      1620
atagagctgg gcgtaaacac tgcacaattc ttttcacgag ctacttcagt gtattgaaaa      1680
gtcctcccag accaatatgc catgctaact gaggttggct tctgctacgg cactgagaag      1740
ggcagccaaa ttgtaaatcg tatcacttta tacttatcca ccacttctgc tatttgcttg      1800
gcattggtga tgttactatt tcggcaggac ccgctttcga gtagttcgcc cttaggctct      1860
gcccggggat ataaccgctt tcaacgtttc cctgaggata acgctttctc actccatagt      1920
caactccgat ccgatctgtc cggtagagcc gataatcagg jgttcttcat tctactactc      1980
cggatattgct ttaagttagt tgggttcata aaattcgctg caaaagtatg gattattctc      2040
ataaatatgc gactaaaggc agtacaaaat caatgaagac gaaaagaaag acaaagacct      2100
ctccacagat tctgacgaat aaatgccatt ccctctttga aggggtttta gccgaacagc      2160
ataagaaaaag agaacgatca agtgcgaaat catttgattt caagcgatac ctatatgtgg      2220
ggattgtcga ttaggcggaa taactatact tttgttgaaa caaaacaata ttttttcgta      2280
tgacaacaca tcacataaag aaacatactc acccaataca aagctaagtg acttgatatg      2340
cgagaattac gattactact ggtcattacg cgctttggta tttcgcttgg tttcggagaa      2400
agagcatacg agaagtctgt gaggacaata aggtaaacac caataccctc tggctgtaat      2460
caatgcactt atcaaccgtc ccgaacaccc ttccg      2495

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(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

gtcaagcagt	gcatcaagct	ctacaccgag	gaacgtcgtc	gccttgcccc	tatatgctct	60
cgctcgccga	cctgtatttc	cctcagatcg	aagagacatc	gaccgtcata	acctcccgat	120
cgagctgaag	tacctgacca	tcgtggatcg	gctctcaacc	ctacggcagt	atcgccggcc	180
ggagcagccg	gtatctgcag	ttcatgctgg	ctacgggcaa	gatatacgga	ctcactataa	240
acagctcgtc	gacgaacggc	tggatctgca	gaaaagtaca	gaggctgcct	gccgtacttc	300
aaggacatgt	acgacctcta	tcgcgactgg	ctcctctgca	tcgggcttat	aactgcgga	360
tcggcaatgt	gaacaaagcc	atccgaatgt	ccgtggcaag	accgacttct	gggagatcta	420
tccctacctt	cctcgcgaaa	ccggaactac	atcccgtctt	tcacgtgtgc	gtactatgcc	480
atgcactacc	tatcgaacat	gagatctgtg	ccggagagac	cgcgcttcct	ttggctacga	540
tacgattatg	ctgtcccgcac	aagtatcttt	cgatcgcat	cgtctatttc	cggtgtgagc	600
aacgacgaat	tgcaactgct	caaccctcaa	tacaaaaggg	gatcatcccc	ggtaataccc	660
agctgtgccc	actacgcctt	cccgtccttc	catcaagaaa	ttggacaagg	ttcgcgattc	720
gctttatttc	cccgatggga	ggcttcggta	tcggatttcc	ctgagcaagg	cggaacaac	780
tcggaggatc	gggacgaacc	gccatcttcc	ataatgtcaa	gcaaggtag	acgtcttgtc	840
catcgccaaa	cgttatggca	ctacggtagc	agccattaag	aggcaaaccg	cttgaagtcc	900
tcctccgtca	agcccgggtca	gaggctgcaa	acactaaaag	ttcggcttcc	ggcaccaaga	960
aaaagagcaa	gtacagtggc	agcgaaagtc	ccgcaggagg	aaataatcct	cgcccttcct	1020
cttcgcaatg	acccgaaccg	tctatcttct	ccaagacgta	tgacaagaag	cctccggaaa	1080
aaaggtagtc	gtataagcct	gcgagcaata	aaaaaagcgg	tgtgcccag	cgctgtttgg	1140
gcgatctcgg	tacaccgttt	ctcttagagg	gtcttagacc	tgattactga	cgctcctccg	1200
ttgtcgcttc	aggagcaatt	ttcttaccaa	accctgcaat	acatttccgg	ggcctaactc	1260
cataaagtgg	tcggaccatc	ggctgtcata	ttcagcacac	tctgtgtcca	gcgaaccggg	1320
gcctcagctg	tgctatcagg	ttctttttta	tctctgccgg	atcgggtgacg	gcgaagccgt	1380
tacgtttctga	tagatggggc	agatcggtcg	actgatcgta	gctcctcgat	ggcttttgcc	1440
agctcttcac	gacccgggtc	catcagaggg	aattggaatg	tccaccgaca	gcgagcttaa	1500
gagcacgctt	ggctccgggt	ccttgagcag	ttcgcaagct	ctgtccactc	cttctaccga	1560
accggataaa	cgatctgtcc	cgggcagttg	tagttggccg	gtacgacaac	ttcatcgtea	1620
cttggggcaca	gatttcttcc	accttttcat	caggcagacc	cagtacgccg	ccatagtcga	1680
ggggcgtaact	tcgcatgctt	tctgcatggc	catggacggt	tcgatacgag	acgaagacca	1740
tcttcgaagg	tcattggcacc	tgctcaacca	atgccgaaaa	ctctccgagc	gaatggcctg	1800
ccaccataac	gggcggaagt	cttcgcccat	cgctctggcc	agaatcaccg	agtggaggaa	1860
gacgcgggct	gggtcacttt	ggtttggttc	agctcctctg	ccgtgccggt	gagaggatgt	1920
ccgtaatgcg	aaagccta	atctcattgg	ctttttcaaa	tatgctttgg	cctcgggggt	1980
ctgttcgtac	aggtcttttc	ccattcctag	aactgtgtct	ccgtgaccggg	gaatacaaat	2040
gctttcatct	ctgtttcgta	ttgttttgat	tatgattccg	attgtttctg	ttcacctctt	2100
taattcgaag	acctatctct	aaaaacgata	gcagatactc	ccgaactcga	cttctatcct	2160
tacactcgct	ccagtacttt	taccagtact	tcccattgtc	gagctcggat	tcgatatgaa	2220
tcctttcgtc	ggcgagtgtg	gttcggacct	accgagatca	tgtccatata	tcgataatc	2280
cggcattacg	ccttggaatga	tacgcattcc	agaccggcat	gcatacctg	tacttcgggc	2340
ttttggccgt	aaactcttcg	aagactttgc	tcataccttc	gagaatgtgc	gactggatat	2400
tggttgccag	ccgttgtagc	aggcgtcgaa	ttccactcgt	gctcctgcca	tgagaaaaacg	2460
ctctcgatgg	ccgatgctac	ccacatcttg	tgcgattcga	agagctacgc	accaggaaaac	2520
gtacggagat	tgacccttcc	ttagccgtat	caacgccaga	ttggatgatg	actctaccgt	2580
accggggaaa	tcttgacat	ggactgcggg	ccattgacgc	aggcttcac	ggcattgatc	2640
agacagcttg	gatctcttcg	ggaataatca	ttcggggaca	ttcgatacga	cttgctcgaa	2700
cttgatgttt	tcctctatgc	cgctgaattc	cttacggaac	aaatctggta	gtcggatacc	2760
agttcccaga	cagcttcggc	ctcttcttcc	tgatgggtgat	aacggcaaac	gcttcgcgcg	2820

gaatagcatt	gcggagcgt	ccccctctac	ccatgccaaag	cgagcaccat	agaatcctac	2880
agcctctttc	agaatctgaa	catcagttta	ttggcattgg	cacgtccgag	gtgaatatcg	2940
cacccgaatg	tccgcctttg	agtcctgtca	aagatatctt	tacgcctatt	cttcgtccga	3000
aaccagctct	tcctccttat	attcgagcgt	gacattgaat	caatacctcc	cgcacagcct	3060
acgaagagct	tgccttcttc	ctccgaacta	tattgagcag	gatgtcacca	cgagagaacc	3120
cgggcttgag	accattgcac	cgtccattcc	cacttcttca	ttaatagtga	aaagagcttc	3180
cagcgaccat	gtttgagcat	tgggtctgcc	atagccgcca	tggcataagc	cactcgatac	3240
cgttatcggc	tcccagagta	gtgcctcgag	ctttcaccca	ctcccgtcga	tatatgcatac	3300
gatggggtct	ttggtgaaat	catgatcgat	gtcgaattct	tttgaggcac	catatccaag	3360
tgcgattgga	gggtcacgat	cgtttgtttt	ccatgcccgg	tgtggccggc	ttgcgaatga	3420
tgacatt						3427

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 682 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...682

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

gcccttggac	tctccaggat	cnccgaatg	ttctctgcc	cgccttggtc	tcattcgaca	60
cagagaccga	ctcgaaagat	gcacttnggg	ccaatatcta	tggcatagac	gccttttggn	120
gggggacgcc	acacggcccg	aatagacaaa	ttcccatccg	gaagtagtac	ttaacccaac	180
aaaaaaccaa	gaaataagca	atgaatatcg	ataattcttc	cacaacgatt	oagggaaaga	240
ccatctcgtc	agggttgac	gcattaaaaa	cagctttcta	agtactttta	tagtgttaaa	300
gccccgttag	ttatgtatca	ttctctattt	gaaagcctct	gcaggttccg	gacccacgga	360
tagagcgtaa	aaaaatttat	cctcttgatt	tttactgctg	atcgttttcc	tctctacact	420
ctcaggcaat	acctcttggt	agagattgaa	gattatgccg	aggaatacga	agaagaattg	480
aaaagtctat	cgaaatgctt	accggccatc	agcttatgca	taccatgcct	tctcatgatac	540
tctcaacagg	agcatcagct	ggtggatgta	gaagcttttg	aggggcttta	agcgatggat	600
tgaagcttta	tcttcggcac	ttcgggtaaa	catattgatt	gatggcaaga	cgatgccggg	660
agtgaagaac	tctctttcga	ta				682

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 645 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...645

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

cagccagtgt	tcccagttat	ataaaacaac	cccagggatg	cctttactaa	cccctgaggt	60
tcttttaa	aacttgttcc	attgccgat	ttcgtctatg	ttcagtcac	cgttcgtcgt	120
tgaatcgg	aaatcttttt	acatggcgtg	aaagaggcca	agaagccaca	gacaatccct	180
gggaagttg	ctataagatt	ggccaatcct	tcttcttacg	aataaaaacca	tatcctaccc	240
acagtcgcag	ttgatacctg	cgaccattgg	ctgaagccaa	tcacctttat	gtccgagaga	300
ttggaaccaa	tctgtggaat	ataagaaaca	tacatcgcca	tagtggtgcc	gtggcaatcc	360
aaccgagaac	tgacaaaaat	ttttcttgat	tcttttacta	ccatgttttag	ttcttggtgt	420
tagcaaagat	agtattcgca	attaatcaaa	gtaggtat	aacaaagaaa	aatatatgag	480
gtcgatgatt	gtttaaacac	tgtatgttgc	gccttctctg	atgctatttc	tgtgccggct	540
agctctctga	ggttgtagca	gtgcagattc	gattctcaaa	tatccatctg	attattgtta	600
cacttgtaga	aattttcatg	gccgacatcc	gaataaaaaga	atacc		645

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 754 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...754

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

ggaaattacc	ctttaatctt	ttctatttag	gcaaacactc	aaaaaataat	tttatgtatt	60
tgtccataac	ggagaatatg	cttatggcca	agataccttc	ctactgtttc	aaggccaata	120
ggtaagaata	ttcgcaaagt	gcttcgtaaa	ttatgcggaa	acagcccaaa	tattttattgt	180
tctgtccaga	attggagaga	tgaatacaat	cctttatgta	ctaaatgaca	agatatatgt	240
ttacaagttg	cacaaatgaa	agaatacgag	ttgagcgatt	attttaaaca	cttcctcggt	300
gaaattgtag	tataacctca	aggaggggat	tgttcgaggt	tgcctat	gggactttat	360
atgtttttac	tctgcctcaa	aaaaaaaaaga	ataggtgggt	atgggtgctgc	agtcgtatac	420
gaaagctaga	agttgaatac	ccgcaggaag	taacgaaaaa	atcaaaaaca	acacaaaaaa	480
acagaatcgg	gactagagcc	gggggcatag	ggaatgggta	ttttcccact	catggggatt	540
cctgcgccaa	aagctatatc	tttgtaaatg	gaaccaatca	gcgtggaaga	tttgtaatgc	600
ttgcaaccca	cgagaaaaaa	tgctaaaaca	tttcttctag	aaagctcttt	cgacagctat	660
tctccaatgg	gagtggtgca	gccctttgtg	cgaagggaag	tttacaatt	aaaagcataa	720
agatatgagc	tatctttcac	atccgaatcg	gtgt			754

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 377 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

gctgtgtcta ngtttggggn acccggtatc agctttctct atttctgcca aagatcaatt	60
atcgtcacgt tggtttggtc tatcagggat ttataaaaca aggactctac cccacgggat	120
cgaaaacttt agagactttc caatcttgga gacgtttaag ctgcgccatct tggattagga	180
aaaatgttgg caatgactga cattgaatga caaagctgct ttcccttcgc tatcgttcac	240
tgtgaccaag ggagtgtacg cgttgcattc tgccagaaat acaagtcctt gtcgcagaaa	300
tctcatatat ctgaaatcca ttgttgcaat gtcgttgata caggctcgct gttcttttac	360
caaagaaggt gaccatt	377

(2) INFORMATION FOR SEQ ID NO:804

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

ggattttgtc tggttaacaac aaacacagca atgaacatta acaactacaa atcaaatacgc	60
aggaggctct acagcaggct gtggagctga cccgtcggac ggacagcagg ccatcgaacc	120
gcagcacctg ctcaaggccg ttatggacag ggcgaaagcc tgaccgattt cctttttgcc	180
aagatggggc tgaacagggc agtatcgcca cggctgtgga caaactgata gagaaactgc	240
cccattatcg ggtggcgaac cctatctgtc gcatgagacc aatcagggtg tacagcagcg	300
gaggacgcag cgcaccggat gaaggacaaa tacgtctctt tgggcacatc gtgctggcta	360
ttctgactac gcgatgcgag gcgtccactc tgtcaaggat gccggagcca ccgaacagct	420
tctgcagtcg gccatcgaag acttcggaag gggcgcaacg tgaccagtca gagtgcgag	480
gaacagtaca tgcaactggag aaatatgccg tcaatctctg tcagcgtgct cgcgatggca	540
gttgatccc gtgatcggtc gcgatgacga gatcaggcga gtgctgcaat tctctctcga	600
cgcaccaaga acaatcctat ccttatcggt gagccgggtg ggcaagacgg ccatagccga	660
gggcttggtc tacaggatcg tgcgtgcgac gtgccggaga atctgcgcaa caagcagata	720
ttctctctcg acatggtgcc ttgatcgccg gagcca	756

(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 424 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

ggcaacgaaa aattccgtgt aaacaaataa ttcgcctcga caaaaaatag gctatcataa	60
aaccattcaa aggagtacgt cctccgaaaag aactcgtaag caagtagcat ctcgccccta	120
cgacgtcctt aattcagaag aagctcgaaa gaagcgaagg gcaacgaaaa gtcgctctat	180
catattatcc gtccgggatc gatttccctg taggaaaaga tgaacacgat gcggacgtgt	240
atgaaaagct gccgagaact tcagaatggt ccaagaaaaa ggctggctcg tacagacaca	300
gaagaaaact actacgttta tgcccagacc atgaatggca aaagcagtac ggncttgctg	360
taggtgcata tgtagaggac tatatgaacg gctgatcaaa gaagcatgag ctggacacgc	420
cgcg	424

(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 622 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

gacatgacta tctccgcaa cgtgtcttgc aactcttttg caatatagag gtcttgcgat	60
ttttcaaggt gttgcgacag atgaaaagcg actcataaca cctttatcag cctttcgcct	120
ttctcttctt gggactcttg aaaaatcttt gacattgggt cttcatttgg acgttccgat	180
tcaacacact gctctttaat tgagagcggt ttatttcgct ctcatttctt ttcattggaa	240
tacccttgaa acaagttccc ggatggcaac aggatctacc ttgccgtttt ggtttctgtc	300
atacttactt aatttttnatt gntatacaat tcactgttca ttttttgccg gtatatttac	360
ctgcaaagat gaatacatcc actatctaag attgcccgat aatgggggtg taccagcagg	420
gctacatcct ttcgttcata cttttttgtg ggagatgttc attgatgtcc atcaatacaa	480
tcgttcgatt tatctgcttt cacacatttc cacgttcaag tgaagaagaat caaaggacgg	540
ttcttcgata taccctctcg cttatatcgc tcatcgaatc gtgatatctc gaagacacat	600
tctncaccg acatattcga cg	622

(2) INFORMATION FOR SEQ ID NO:807

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 464 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

gtaatagtg	ggcgcatctg	gcaggatttg	gctaattccca	gcggtttggg	ttttggtgcg	60
tatcggtatca	gatccggaaa	ggggctgcac	tcaacgcctt	cagatagccg	aatatctcat	120
cgccaaagga	catttcgctc	gctgacacgg	tatcgctttg	cgacatagcc	tgaaaaggat	180
aaactccgaa	agccaattta	accctcctgc	tttcgggggt	tgcttttgtc	gtattataat	240
gttctttcca	ataagaatcg	atctaaaaaa	gatattgctg	tccggtaaaa	aatgagattc	300
tatcttgaat	ttcctaactg	cccaagtttt	accgatagca	atagaaaaag	agaccattgc	360
acaataactc	ttctatccct	tcatattgat	cagacagaca	caagcattga	ttcgacgaaa	420
gtaaggagtg	cttcatgcag	ttttgcgaac	cctcaagtat	ggga		464

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 847 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...847

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

ggttggtctc	ctgtatccaa	ttcttcgtca	aaaactttga	aagcctcaga	catcctccga	60
gattatagat	gagaatggga	taaaaactta	cgaactctcg	tgcggaactg	cagctcatag	120
tagtgtagta	aaagcaagaa	gtcttgtag	ggctaacacg	ttgccaatag	gagataaaaag	180
aagtggggcc	ttgagaaaaa	aagaatctgt	cggtagagat	atgtactgaa	atagagtgtg	240
acagtgtgag	gatagccatc	aaaagccctt	attaatcggg	atagtccagg	tctttaggtc	300
ttataagatt	tattaattca	ttggagagaa	tcagatatag	cacgtattga	agtccgcttg	360
acttttttca	aaatctccta	tctcataata	tgaactcctc	taccattata	ccaaggatg	420
tatttatcgt	ctaattctat	tcctgagaat	agtctttaat	pgctttttta	taccatcctt	480
tcttagaata	gcatttcctc	taccatgata	cgcaggggcg	tatttatcgt	ctaattctat	540
gcctgagaat	agtctttaat	cgcttcttca	tatgatcctt	tctcaciaat	gcatttcctc	600
taccataata	cgcatgggcg	aattttaccgt	ctaattcatt	gcctgagaat	agtctttaat	660
cgctttttta	taccatcctt	tcttagatat	gcatttcctc	taccatgata	cgcaggggcg	720
tatttatcgt	ctaattctat	gccttagaat	agtctttaat	cgcttcttca	tacgatcctt	780
tctccaatat	gcaactccta	taccattata	ccaagggtgt	atttatcggc	taatctattg	840
cctggag						847

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 569 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

gcgaattatt	acaacgtcca	agttgttcgt	acgtgcagcc	acaacagcct	gaggtaataa	60
gtagtagcat	cgggattctt	tatcccattc	aggatctctg	tgctcgggtg	tagtcgcat	120
tgaggatatt	ggccacggca	gcattgtgct	ctcgggtctta	ccgaaagccg	ctacagcctg	180
ggcataaattg	ccctctgcag	atagagcaaa	ccaagagctt	cgcccaattc	gggcacattg	240
gcagcgagcc	gaaatactgc	ttagcctgct	ctacattacc	ctcggttaaga	gccatagtcc	300
aagggttcata	tcccgtttct	gcattgggct	tcacgcttgc	agcttttgga	accaagtccg	360
agcaccctcc	aaatcacccg	tgcgataacg	cacataccga	tattggtata	agcacgatag	420
tcacccggat	agatctgagt	accaccttgt	aaatatcttc	cttttgagca	ggagattcga	480
gcagagtaca	tatagagcag	ctcttcacgt	cagccggccg	ggctctggctg	cagacgttgt	540
ctgtatcgtc	tacctagatt	cgacattgg				569

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 608 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

cgacaacagc	cgactgcaca	tcacctatat	gaacgtcgcc	gtaccgtttt	gatgaagaag	60
tgcgcagct	ccttttctct	ctatgccgct	ccggtgctaa	gttcaagacg	gcttccagct	120
ctaagggtg	gttgccggac	aacaagatca	ccagaaaac	ggtcgcgatc	tgaacctgaa	180
tcctatcgtc	ctcgaaactc	tgctcggtatc	aattacagtg	ctttcaatct	ctatggttct	240
tataccttac	gcccctgttc	cgcagtggaa	aaggacctga	tacacgcgat	ttcgcacatg	300
cttcggcttt	ggtttctaaa	aacgaaaaag	caatgaaacg	ttttttttga	ccaccgctat	360
actgctgtcc	tccgtgcttg	cctcttacgc	cgcagccttc	cttcggccgt	tcgcgatacg	420
gtgattcggt	ccggggagaa	accattatga	tcaaggatgg	tgaggaccaa	tttcgaggta	480
attatacagg	gtccatgcct	tccggagata	cgatccgaaa	cgaaaagata	ttcagagggt	540
ctatcgcaat	ggtcgcagca	tcgaacaacg	ctttcggaat	actttgataa	tcggccgaca	600
gggataag						608

(2) INFORMATION FOR SEQ ID NO:811

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1130 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1130
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

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acggtcctgc ttgagcatgt attgcgctgt tgcaaagtc gattgtacta atgagagccg      60
acagataaccg aggatcctgc tggcaaagct gctgacctg aatcgtctgc gctcatcgct      120
accgcccagt atgagctgat agtcctggga gaaactatta ccagcgggaa gcgaccgata      180
tgatcgctca gtcgttatat tctttcttat tccgacgcag taccttgtgc ttccccggac      240
gaataaaagg agcagctcta tcccatcgcc gctttcatcc cgataaaagg cctgaacagg      300
gccatttctt ctccatgtct gacaaccata ttgtccggtg cggaagatga ctgacgacaga      360
aagagaggaa atgcagcgca tccagcagat tatcttgccc attccattgt tccccaccag      420
acagttcact ttgggcgaaa acggcaatcg gcagctgcga tactcttaaa attgacgata      480
tgagattctt tatgatcatt ctcgttgggg taagatagag ggtggaggac tgtctcgctt      540
tctgtcaaac gaatacctac ttccgtgata cctgaaagag tcggtacctc atattgtgct      600
ttaactctat cttataaaga cccgaatagg gaaaacggcg gagatcggca ggcgaaaccg      660
gttttgctgc ttggcaacc cttttcggtt cactgttgcg gcttgtcggc caaagtcaga      720
tccacagagt ccgcaagatc agacgtcttc ccactgaaac ctcgatgccc aatgccaaat      780
cgcgatttca taccgattgt catggcggat cagcagctcc aaagaatatg agcagtatat      840
tccggtatga ggatttcgta gtcgagcaca tcgcgcttct gcaccttcca tgaggcacct      900
gacgatacag tattcgctcg tccttaacngt agtgcaagac acaagccaag catatcccca      960
atgcaaccag aaaaaaactg ttgcgccttc ggacttgctt tcgtaccggc aagcaccat      1020
ctccctttat cttctttctt cttttctctg tcggctttct gacgtggaag tgctttgacg      1080
cggtggtctg cggcactggc caccacacgt ctggcttctt tcatacgtcg      1130

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(2) INFORMATION FOR SEQ ID NO:812

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2193 basepairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2193
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

```

agccataaac tgcggccgta tttcattatc tttgttccat aatcatggat attatgaata      60
acgatctcca atttactatg gtagctaaga ccctttatgg ttggaggatg tcttggctgc      120

```

cgaactaaca	gccttgggtg	ctgaggagta	accgtcgccc	ggcgtatggt	cagttttcga	180
ggagataaga	ggatgcctat	cttgctaate	tccggttgcg	tacagcactg	cgcatattga	240
aaccttaata	actttccatg	cgaagacgac	agatgaaatt	tatgaaaggc	tcagcttttc	300
gattggacga	ccgttatctc	atcggatcaa	actttctcca	ttgttccgct	gtttattccg	360
attcgttcaa	gaacagtcag	tatataagtt	atgtaccaa	gatgctttgg	tggatttctt	420
cagtgatcgt	gagggcaaac	gccctctgtc	cggctctcca	atcccgatat	tttactgaac	480
atacatgtgt	gcacgaggaa	gtaacctgtc	cgctcgatag	ttcgggcat	agtctgcaca	540
gcgaggctat	cgtgtggccg	aaacgactgc	tcctctaaat	gaggtgttgc	tgccgggtatc	600
ttgctcaaag	ccggttggga	cggtagtacg	gatttgacga	tcctatgtgt	ggatccggaa	660
cgttcctgat	cgaagctgcc	ctgattcatg	caatattgct	cccgttatct	ataggcgagg	720
ctttgctttc	cagcgtgggc	ggatttcgat	ctcgatctat	atgatgagtt	gttccatgac	780
gacatgcgga	acgtgtattc	gatcatatca	tctacggttc	cgataattttg	ccaaggccgt	840
ggctgcgggc	agaagtaacg	tggagcgagc	cggctctggc	agtatatctc	tctgatgtgc	900
cttcccatgc	agcagcgccc	gaagcctgaa	tcaaggctat	gctggtgatg	aatcctccct	960
atggagaacg	tatcaaagtg	aggacatgca	gcagttgtat	accatgatcg	gagagcgact	1020
caagcataat	atgcaggttg	ctctgcatgg	attctggctt	tcaagccgga	gcatttcatc	1080
atatacgccct	tcgtcagttc	catcgagaaa	agttgatgaa	tggagcttgg	aatgtgagtt	1140
gcgaggttat	gaactctttg	agggacgacg	cgattctttg	ccgaaagaaa	aagtcgtcga	1200
gccgaaggag	aacaaggcgt	aggacgagaa	tcgaccgtcg	tgacgtttct	gccggaaggg	1260
aaaaacgctc	caacccatgc	atcgagaaaa	taagtctcct	tatcgttctc	ctcgtcctga	1320
taacctttca	gaacttccga	taaaaggaaa	aaagagcata	atgatgagca	gcacgagagg	1380
ctcgtctggc	gaacgatagg	ttccgatctt	cggatgaatc	taaagaggac	ctcgcaaatc	1440
ctcttcaaag	cggattcagg	tgatccgcaa	gatgaataat	aaagaataga	aaatcaaata	1500
caatagataa	atgaagaagc	aatcttccaa	caactatttc	tgtctgtttg	tgcccttaca	1560
gtggccttcc	ttgttcggct	cagtctcctg	aaacgagttg	taaggagttt	actcttggca	1620
actgatgccc	ggaggaaaaag	agttttataa	cttttaccct	gaatactggt	cggtttgcaa	1680
tggatgggag	acaattatgt	ctttatcgag	gggtgagattt	agtttttaat	aaggcgaatg	1740
gcaaatacggc	tcagacgacc	agatttctgc	tgccgatctc	aatgcactca	tgccggaggg	1800
atgcaaattt	cagcgactga	tgctttccct	tcattccgca	cactcgatgc	cggacgggga	1860
ctgtcgttct	atttacccaa	ggaggattag	tcggattcga	tatgcttgct	caaagggtgac	1920
ttatcttttc	gataccaatg	aggagacggc	ttctttggat	tttctcctgt	gggagaccgt	1980
gttgcctatg	tcagaaaacca	taacctttta	ttgctcgtgg	aggtaaattg	ggagaaggta	2040
tgtaacgagc	tatcgctgga	ctatcgatgg	aactgagact	ctcgtatatg	gccaggccgt	2100
acaccagggtg	aattcgggtat	cgaaaaaggt	acattctggt	ctccaaaagg	gagctgcttg	2160
ctttctatcg	aatggatcag	agtatggtga	agc			2193

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 770 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...770

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

gcattccact	gtacgggatt	gtggctggct	gtgatgatga	taccgccatg	gcaccacagc	60
ccgtgacggc	catttcggta	gtgggagtcg	tggccaaact	atatacgacca	catcgcatcc	120
cattcccatg	agatgcccga	aaacgacttc	ttgacctaga	gtccggacgg	gcgagcatcc	180
ctaccgacta	cgatacgggg	cgtttggttt	tagttaactt	tttgatgaaa	tgagcatagg	240
cagcttgaat	tgggctatgc	tgataggatt	taatccctca	tcggccatac	cgccatcggt	300
cctcgtatgc	cggagattga	tttgatcaac	gtcatgatat	ttttgatggt	agatgaatag	360
attcctaaga	ttagaggctg	ggaggggtca	gtccgaaata	cgtattccac	ttccttgtaa	420
tatccggtca	ggcctcgcga	aagagcgatt	ccgggccgat	tcggaaagg	acgatcaggc	480

gcacgcgagc	ttattgccaa	gcatgggtcat	ggggaaagcg	actccttcgc	agacgaacaa	540
tccaggttg	aaccgggtcg	acatttgatc	agttcgaagt	gaatatccca	tcgttggtact	600
tatatata	gcggaatacg	ctctcctgaa	aaccgcccga	gtgagactgt	tgaagacata	660
gatggagtcc	ctctcacgat	tgaacagaaa	ccttccatcc	tgacgttgat	cttggtcttg	720
ttcagcacgg	gaggcctttc	cccttatcca	gtacctgcat	ataaagatcg		770

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

tatatccatg	caggatatag	ggctctttcc	caaaacaggc	aatactctcg	catcggtcaa	60
gaatatgccg	atgtcgtgca	gcatggcagc	ttcttcgaga	agagacgac	cgccctgaagc	120
tcgggatgga	tttcgacgat	acgaagacca	aggccgccac	atcacggcta	tgctctacta	180
aaatatggta	ttggttgttc	cctcagtgta	gtacttattg	atgatgctga	tcggatccat	240
catttgggaa	agagagttag	acgggaagtg	cccggagccg	ggatcgaacc	ggcagaattt	300
gcattcattg	gtgtttgaga	ccaacgcgtc	taccaattcc	gcctccgggc	aattgtcttt	360
tcgaatacgc	gcaaaggtag	aaaaataatt	catccgcaaa	tacttcttga	taaaaggagg	420
tctatgggtc	aaaaagatgg	atagtatcga	agagagaaa	tctctcttcg	atgctgcccc	480
gattgcttta	tggtttttct	attc				504

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

gttcgttcgc	aaaccacagt	gacaggagta	caacccaagc	tatctctcgc	tttgaccaaa	60
tgagcaattc	gcccgaagcg	tttaccatcg	tgggcttggg	ggacgggtta	ttcttaaacc	120
tcaaacagag	cgttattcgc	atctcccga	ttggaggatg	tgtcaatgca	ccttgacagag	180
attgccaaga	tagaaaagtt	cctcatggac	tgatgcgatt	tagcgatggc	gaactatgct	240

atatacctcgt	cgcataagacc	gaacaggggca	aggggaaaaag	ctcccaatgg	aagaatgtgc	300
cagctctcag	agcgtctgac	cgaatataaa	tacaaaggct	caccgagcag	gtagccaagc	360
tgatctccaa	gtatagctct	gtgccaaaaac	ttatcttgtc	aagtactggg	agcaggtact	420
cttttcgtgg	ctgataggta	agccgatatg	cacctcaaga	attactcgct	ctatgctcca	480
gagggaaatg	atatcaactc	actccagctt	acgacctgct	gtctacggca	cttgtattct	540
gaggatacag	aagaacttgc	attgaccttc	tgtggcaaaa	agcgcaaatc	actcgccaac	600
acttcctcga	agcgatgaca	gcctcaggac	tagatgaaa	tgtgtgacaa	tatttcgctc	660
g						661

(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1004 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1004

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

ggctgtatct	ctgtcagact	gttccgatgg	attcgccaca	gctgagggac	agccagatgc	60
aaggccgtat	ctatggtacg	aaggagccga	tcggtgtcca	tggcttgcc	atgaagtcga	120
aagctccaa	cctcattccc	tccactgcag	tggaaatcgaa	gccaagccg	tcatacgtat	180
gacagggcag	gaagtgatat	ctgcattctc	tccagtagtt	ccaatccttc	cctgcccggag	240
gtcgaaggga	gaaattcata	tccatcagaa	tcacagccgg	cttacagccg	ccataggatt	300
ccgcattatg	gacaaagctt	cgtcggggact	ggttggtata	acggattata	gcccgcctcg	360
ttgagcacca	gacgcagtgc	ggcacagact	gcacatcatc	gtctacgacc	aaaatatcga	420
tcagtttttc	cattgcacgg	taaagtacaa	attggcggtg	aagcacggtc	ttttctgtcg	480
aatgtctcaa	cgagactgtt	gcaggggatt	ttcattgaac	tctttttccg	cagagctgat	540
ctttgtgcct	tcggtgaaag	ttaaacctcc	aggacatgag	caccgagcaa	tagatatttc	600
ccccagtttc	tttcataggt	gtatacttga	ggtttgagag	atccgcata	agcatttcct	660
tcttcgtcaa	atcaatgctt	gtgtcgtagg	cgagaaatcc	ccggatttgg	gagatgagct	720
tttcgaattt	tgggtggggg	aagtcaagtc	caataggaaa	agcagacgaa	gagaagccaa	780
actctcctgt	cttgatcaat	atgatgggg	ggaaggggta	ttctgcaacg	gcccagcttt	840
tgaagtttga	agcttttgac	ttattcccag	tatcaaaatg	aaaggggctg	tgtcaaaatc	900
gaatttcgac	acaacccgca	ttgttatttg	tggactttgt	gacccgggag	ggattcaaac	960
ccgcgacctt	cagaaccgga	tctgacgctc	tattcagcta	agct		1004

(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

gcgaatagcg	aggcaacttt	gaatgaatgg	tcgcactatg	cacacccggc	ggcatcgtga	60
gggtagaagg	tcgttttttg	aaaatgactt	acaacataca	acctacaatg	cagtctgcac	120
ccggattaca	ttcgaaaatc	aagaaatgaa	ggaacgatcg	tcttgatacc	caagcccaaa	180
gtctcgtcgc	ctcatggctg	gaatcggctg	cttgcatccg	aaccgaagcc	gggaggggaat	240
ttatcttttg	gaagaagacg	acacctttgt	gtctcacgat	ggtaacgaag	taacataggc	300
ggtaaacctt	tcttgctcaa	taccaacgta	aagattgtgg	gggcgtatct	caaaagtatg	360
ccgtgggggt	aggagaaatt	cgattcctgc	agtttgtgcc	caaacagtat	cacaacaaaa	420
atgaacacaa	gatgaaacaa	aaatacttgg	catacagctg	tcacaatgga	caaagtgttt	480
tctttcattc	tcctgattgc	aggatgtaca	ggagcattat	cggggcagtc	ttccatcaca	540
tcgagag						547

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 885 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...885

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

ggaaactcacc	atcgacgaga	ttgtggaggt	gaacgggtgag	aagtggatat	tcgaaaaagg	60
cacaagacac	aggtgccgta	ccaagtgaag	ctgctcgagt	acccttgcaa	atcatcgaca	120
gataccgacc	gttccaaaag	gacaactcat	attcggggac	atcaactact	ggacgggtctg	180
caagaagctc	aaaaaatcat	cagcgagtgc	ggaataacaa	aagacatctc	cttccattgc	240
gcaagcacgg	ctttgcgaca	ttggcactca	gtaagggcat	gccgattgag	agcggagccg	300
tgtactcggg	cacacgaaca	tcgtaaccac	gcaactctat	gcgagataac	caccgagaaa	360
ctcgacacgg	acctctccat	gctcggcagc	aactcaacgc	ctcatttggc	tatatcaaaa	420
tggcatgaca	atgaaaggga	aggcataaac	agcaatgtcc	gtcagataat	cacggtggac	480
gaacatggga	catcaccgta	cccaatgaag	aaatatggat	gagcgagtat	gagattgcca	540
cctgctgggc	gtattcggac	ataccatccg	cacgcaggtc	aagaagatta	cagggatgga	600
ctgctgcact	cctgcacggc	agagaggaac	atcagggggc	ggaggggtcgc	tggcttgatg	660
tgtacagcct	tgaaatggtc	atagccttgc	gttccgcata	aggctcgcaa	gggcaaaaaag	720
gcttcgaaag	catgtatcgc	aatgctgacc	gaacgacacg	gaggctttat	catgttcctc	780
ccagagaagc	aggttggttc	tgctaaaaca	gcctgacagc	gtttatagag	gttgtcccca	840
ttgacacaag	gggataaacc	ttttttcttt	tttggtggct	ggaga		885

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

```

ggattgatgg agtggatggc aatgctgttc cactgcccac tgtattggtg accatctgaa      60
agaccggaat gttttggggc atggtgctct gttcttttag caaatggaat agttgctacg      120
ggaaaatctc ctcaagaaat tgctgaagtg tggtgtgcgg cgaagtagat cttacctctt      180
accccttctg ttctgcaatg tcattgcaga tacattggca ccgctcataa caggagggat      240
gcaaaaatag ctgccaacag aaagagaaga gaggactaca tcgagactct cggaaagggc      300
ctagacctta tctctacgtt attggtgcta ccggcaatat atagaagacg ttgttcaagc      360
acaagcagct gctcgccaag gagccgatat tatgccgtaa tacgtactac gggacagagt      420
ttgctcgact atgttcctta cgagctacga cagaaggatt cgggggtact tttgctacac      480
aagaaaactt cgtatcatgc gaaaagcctt ggatgaggtt ggagaagagg ttggtcgatt      540
atcaggctct gcaactattg ttcaggctct tgcatgccgg aaatagccta atgggagcac      600
tcgaaggctt ggatgtaatg ctcaatgatg ctctctagga attcttttcc gagacattaa      660
tatgcaacgt actttgggtg atcaatcatg agtcgtgtta tcaatggatt tgccggcggt      720
atcatcaata ccggtaggat aactacctaa ccactgctga tgccgtagaa gaagcacata      780
ccgtcttgcc tcggatttga tcaatgagca gctggctctt acagccggat tgcttcagaa      840
cagatggggc ttggacatgc atttgaaatg gatcccatgc tcagaatgga ttccttttcg      900
aattggctca agcacaaatg accagagaaa tttcccaaag ctccgcttaa gtatatgcct      962
cc

```

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 622 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

```

gaactcacgt taaagtagat tatagaaaga accagtaaac caattgtaga ctatccccggc      60
ccaactgtca acttttttca gtacacgtca aacttttcgt tttggcgcgg gagcgaaaaa      120
attctcacgc cactgcgaaa aaattctgcg ccgcttttcg ggaaaacacg cgccacaatc      180
ggagcggttc tggttctatt tccgaggctg tcagttgtag actttccgac aatgggtgtag      240
ctctactcct ccatactaca ggctcggcca acagacaagc acgacatccc cacaattgcc      300
ctcgcatcag actgatgaga tcgtgactgt tgatgcagga acgataaaaa ggaatttttt      360
tcggattcat ttggcgcata acaaaaaaag caacctttgc agcgtcaaaa tcagaaggag      420
ctttcctttt gatgggtatt gtcctgtagc tcagttggta gagcaaatga ctcttaatca      480
ttgggtcgtg gttcgagcct caccgggggc acaaaccaat agcagagggc tgtgttgaat      540
agtttttttg acacggccct ttaacttttg gatcgggggt cgcctttttg aaaggatatg      600
ggaaatatct gtcaaatgcc ga

```

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

cagtcctttc	ctgggtcgggt	tcggtttcgc	tgaacgaaga	ccgatacttg	agtttgtttt	60
ctttcatttt	tctgtcgttt	ttttctaaat	ttcctttggt	gcaaagggtac	atacgaacaa	120
gtattcntga	gcgatgcaga	aaaatgaaga	tgaggaataa	aaacctatga	cacagttggt	180
tacattcaat	tcgtaaccct	ttttgctttt	tccctgatgg	gttacgattt	ggtaacggaa	240
ctcctccgtt	tgatgctcgt	tcttgcttac	cctcaaaaata	gtaagaaaat	gctaatagata	300
ttatttcaaa	tagttacatt	ccctgcattt	ccctctgttt	ccctaattct	taatgactga	360
ttatgcccac	aagatgagct	tagattttacg	cagattgatt	tggagaggta	ctcggatcat	420
atagacaaca	aggcaagcca	cgtgccaaaga	tgctcaatga	ctattaccag	aagttcgtatg	480
cacagaaggg	acgcagttcg	ttttctctga	tttagggact	tataagcccg	gaggagaatc	540
aatgtctatt	cggagatcaa	acgtaagttg	gtagaagact	atcacatcca	tcgcatgaag	600
tacgctttat	ccaagagtgc	aagaacgaga	aagccaaaaa	gcaatggtgg	acgccatgaa	660
ccgtggcgac	atccgcatca	tcttcgttct	acttcgatgt	tgggaaccgg	ggtgtcaatg	720
cccagcaacg	tgccctggct	atccaccacc	ttgatacacc	tttggcgctc	ttcggatttg	780
gagcacgcaa	cgggcgttgc	cgtgccgtaa	gggcaatatg	attgccaaag	agttgcggat	840
aacaagtncg	atgtgattat	ctatgcgcta	gaacgctctc	tgatagtata	agttcaattt	900
gcttcacaca	agcaagttgt	tcatcaatca				930

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

agttgtaaaat	cccccttgag	gagctgcttg	cacgagctcc	tcaagggtgt	tataccttat	60
cctagagatg	aggacataat	tatccccggg	gttctgtaaa	attaaaggcg	atgctttcaa	120
gaatgttttg	agtatgggtc	ttggcaatcc	ccggtatcga	catcgtccgc	catgaaacca	180

ccggcggaata	ctgccaaggt	gcgttcgatg	gtgctccgta	tctccacaag	gcttgcatcg	240
acaagaccct	ttccctgacc	gaaatgtgat	ggcgggaaag	ttgtttgtta	aactcgccaa	300
tagtttgctc	atgagcccca	actctgtcag	tgccgaacga	aatgactgat	ggtgctgtgg	360
tcgggagata	cctcttccat	agccccaaga	atgggaaaag	gtgattgaat	cattgatgcg	420
ctcctccaaa	gcacaatcac	taggttgtag	catgtcttcg	gaagcaacat	cttgaataag	480
agaatcacgt	ataagccggg	gcgccgatgg	cattttgtcg	cttcgtgtat	ttcttgttgt	540
cagcgtcctg	atcggacgcc	aatcgataag	cctgtcaacc	tgattgagaa	gtcgttttgt	600
gctttgcgat	a					611

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 266 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...266

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

gatcggacgc	caatcgataa	gcgtgtcaac	ctgattgagg	aagtcgtttg	tgctttgcga	60
taacgctttg	aaaggagtgc	gtctgcaa	atgtacatg	atcggtattc	ttggattggg	120
atgccatggg	aggaatatta	tgctgtttta	ataactcaa	atacaaaata	actccctact	180
atacaatcaa	ttaacagcaa	aatacacacc	aattgccgtg	caaaggcttc	tataaatact	240
tgaattgcta	caacccaaag	agctat				266

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 593 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

gcaggaagca	agaatcagcc	gacaatcgcg	tcctgcatcg	tcaggaaga	agaatcagct	60
gacaatcgcg	tcctgcatcg	tcaggaagc	aagaatcatt	gacaatcgcg	tcctgcatcg	120
tcaggaagc	aagaatcagt	tgacaatg	tcctgcatcg	tcaggaagc	aagaatcagc	180
cgacaatcat	ttctgttct	cacctatcg	cacaagcatt	gatttgacga	aaaaaggagt	240
gtctctgtga	gtctctg	acctcaagta	tccacctctg	aaagaaactt	ggggaatttc	300

tgtttgctcg	atgtccatat	accggaggtt	tgatctttcc	caaggcacta	agaatcagct	360
ctgcagcaaa	agagttcaat	aaaaatccc	tgaacaagtc	tcattaagtg	ttttcgattt	420
atatatgatt	gaaaatgggt	ttatataaat	cgcaggtcga	aaaaggccaa	tatatgagct	480
gagtgtagat	ttcattgtca	tttaatcatt	tgtcaaagag	ctttacaaag	ggaccgaagc	540
tctatccatg	tatataaatg	ctcgctgaaa	gcaagttcta	tcggcattca	atg	593

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

ccggtgagta	ccgtttcgc	ggtggcatgt	accatggctt	ctaccatatg	ccgtctttga	60
ggaactggac	gccgtcgatg	cttgcacccg	gtatgggtgc	tgctcgaacg	tttcgggggtg	120
catgaagttg	tatcccattc	cgtcctgtag	agggtactgat	agggacgtcg	ttctattctg	180
acctcttcga	ccttgagccg	ctgttcacag	tcttatcgag	gatacgtcct	gtagccacgt	240
tcttggtttg	gtgcggacga	aagccggggc	tttgccgggc	ttgacgtgaa	ggaatcgacg	300
atgaagtagt	attgtccctc	aatttcgaga	cacatgccgt	tgcaaagtct	gccgttgtag	360
ccatttgggt	ataatcgctt	ttttaatgat	gagaaagggg	tagggggcgg	ttctcgaaat	420
actgccgatc	cttcgggata	tggcaaagcc	tcctgttgcg	gaggcaa		467

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

ggcgtatcgt	ggagcaagga	cgccacgatg	aactgtatgc	cctgggaggt	actacacgaa	60
gctatgcgat	atgaacgcag	aatgagaaaa	tgatactttg	tgaagaaaag	aaaaccgatg	120
gactacaaga	ctcgcatcat	atatgcctgt	tgaaaagcag	gctgaaaacc	atcgacacct	180
atgcctctcg	agctgagaaa	tacaagaccg	ccagctcagg	cgcatcctgt	cgagtgcagc	240
ctacaatcca	ccggtatccg	ctacgggttc	aatcgcataa	gctcgaaaaga	gtgtttgctc	300

gcaacgtacc	tggttcgcat	tacgaatcga	cacaagccga	aatgaacgaa	tgcttcgtgg	360
cgaaaaagac	gtgctctgtc	cggggcggtg	taatggtttg	ccaaaagcag	cggcaccacc	420
aatagcaaaa	gcaagttcat	cccgttccat	accgccacct	gcactattgc	cattatcaag	480
gggggaaaga	tccctatcgt	tatacctacg	caatagacct	gacagtcgtt	tcttcacgat	540
aaaggggttg	tactgggttg	cagtcacgcc	cctgtatcca	tgaatgccat	atacaagtcg	600
gcgacttgag	tgccatcctt	gtcgagaata	tgccctgtctc	ggcaactgca	tgcgcggtacc	660
ctcgaaaaga	acgctcttga	tggacgggtg	acggagaagc	tcaaagccgt	agttcgcgaa	720
gtggcgcatg	tacgatcgga	agcttgtccg	gcgtaccgtc	ttggatcctt	gtcttgatca	780
aggagtactc	gcagctacag	gccgagagac	tttgtcggat	gtatggccgg	aatggaagta	840
tttttccacg	gcgggtatcag	ctttgtctccc	tatcgagcgc	agatgagaag	ctgatacctt	900
cttcacggat	gcagtatatg	gagacgtata	agcttcggaa	ggtttcttcg	gtattcagga	960
tgatccgaag	gatagcggta	gctgctgatg	ctcgattacg	gagtttacta	cgaattcatc	1020
ccgatggaaa	tttcggccgc	cccgaagcgg	aagccatccc	actcgaagga	gtggaaaagg	1080
gcgcaattat	gccatgatta	tcagtacgct	cggaggactc	taccgtttgt	actggcgcat	1140
accgtacgat	tcacatcggg	gaaaccatac	aagatatcat	caccggctcg	accaagcact	1200
atatcaacgc	attcggagaa	gagctatggt	agacaatagc	gacaaggctt	tggcggcgac	1260
atgcaagcga	tttgcgtgca	ggcagtgga	tatacggtag	cgccccactt	tttttcggaa	1320
gaggcaaaag	acggcacgac	tggctgatcg	aatttgtctc	tgacccgggt	gaccgaatgc	1380
gtttgccaaa	gcattggatg	ccgagttgca	aacgctcaat	tcgactacga	agccaagcgg	1440
tatgcagaca	tgactctgct	cccactctcc	tgacgatcgc	tcgctccggt	ctcttccacg	1500
attggcttac	ggagcagggg	agctgggagg	acagcacaaa	gtgcctcgtc	tgagcaatac	1560
accggaaaaa	tgaggtctat	cctcgaaatg	aacagttaat	cgcatcttcc	cgattatggc	1620
agggggagat	gtttccgaac	aaaagaatca	atgagtaaaa	agaaagtaaa	agcaagacta	1680
aagcccgcaa	gggagacgct	cctcgcatca	accgtccggc	cgtaggaaca	agcgcatgac	1740
caaggaggag	atgcgcgaatg	ccatttggac	atattccaaa	gcaatcctca	gagcgtgatg	1800
aactacaagc	aggaagccat	ctgatgggag	tagaagctgc	accacaaaag	ctaattggtga	1860
acccctgatg	gaagacatgg	ctgtggatga	catactgcat	gagatagagc	gggacgctat	1920
cgggtacaatg	ccttgggatt	gattgtcata	ggcacttttg	gcgtcgggtc	aatggccgca	1980
attcgtttat	tcccgaaggg	ggcggaacgc	cattttcatt	gccgaaagaa	attcggcaca	2040
tgccatggac	ggtgacaagt	gaaagtacaa	ctctttgcca	aacgctcggtg	tcgcgcgccg	2100
gaagccgcgt	gatcgagatc	atagaacaga	agcaggccac	tttcgctcggc	aagatcaa	2160
caatagagac	tttgctttcc	ttgttacgga	agatcgacac	ttagcaatga	tattttcatc	2220
cccaaggaca	acctcggcaa	cgccaaaaac	ggcgtaaggt	aatagtccga	atactcgaat	2280
ggccggagca	atccaagaat	ccctcggaga	ggtacaagcc	gtattgggac	cggccggaga	2340
caacgatgcc	gaatgaatgc	cattttggcc	gaattcggat	tgcccttatgt	ctatccccaa	2400
gggtggaaga	ggcagccga					2419

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

aggctcgtc	ccctactcgt	caagcagcaa	ctgggtgggtt	gcatacaaccg	aaaacatttg	60
caatgctgac	atccgcaatc	gcataaagaa	aggggtatgac	aagagatcgg	cacggggcatg	120
acaaaaatat	agagcagata	gccggaccgg	cccggagatc	ctcctgcagg	atttattcca	180
cgtatcggac	aaggacaaga	gttgatcgtc	tcgggcatac	acaccgtttt	atacaacgaa	240
tggaagagcg	ggatctactc	ggtcgtgcgg	aatggatgaa	gctaaccggcg	atgctctcag	300
ctgcaatcgt	cgtgctcatg	aggttttcga	acagatagaa	tcgagtatgc	ggaggctcgc	360
aaattggtgg	cagaaaagac	cgataccatt	gcatacatgta	tgggcaggac	tataatggga	420

cttggtagct	gcccggagag	tcagctacag	tacagccatg	ttcagagatg	cacgagtatc	480
tttcgactat	cagccggcaa	agtcaagtagc	cagccgtgta	gtttcgagta	tatttttcagc	540
gccatcgtea	tgccgaaatt	tggatatgta	cgatgatggg	aaacatcaga	caatggatga	600
attttctcgt	ttgaacgaac	gctaccgaca	tttcgatcca	cccaaaccgg	taagggtttac	660
atcgatcgca	agcgcgtgaa	cgagaagggg	gcaatgacta	ctgggagagc	gggctgtatc	720
gtcccgatct	tttgccaaag	acatcatcaa	gatcaccggg	ccggagctgc	tacccgagta	780
cgagcttcat	actggataga	actgaagagg	ccatgaagcg	atcatcattc	atatcggcac	840
actttcttta	ctgactgcca	tggctttcgt	gaccgacctc	attggggcag	tctggatata	900
tcgcccggcg	acgtgctgca	agctctgacc	acggatcgga	aatgcaaaca	accaatgact	960
atgtcattcg	caattttccgt	tgccgaaggc	tctgaccgct	ctcttttgccg	gtgccggcat	1020
atccatcgcg	gtctgcaaat	gcagagtctc	ttccgcaatc	ctctggctga	cacctctatt	1080
tggggatcaa	tagcggagcc	ggtcttggag	tagccctgta	catcatgcat	tcaccatcat	1140
acccgggtctc	agtctgcact	ccggcacggc	cgacactggg	gcgtagctac	ggcagcctgc	1200
ataggttcca	tgctggtagt	tctgccatct	cggtctgtagc	agcgtggctc	agagatatgg	1260
tctcggtgct	gatcttggag	tgatggctcg	ctttttggcc	agttcgttta	tatccattct	1320
ccattctttt	ccgacaatga	aatgctcaaa	gggtatctga	tctggtcctt	cgagcgtgg	1380
ccggcacgac	atggcgacag	ctatccctga	tgatccccat	ttttcgggcg	gtctcttctt	1440
gtccatcgctg	atgcccaagt	atatgaatgc	ctcaacatag	gagagaacta	tgctcgtagc	1500
gtaggtatcc	acgtggagca	gagcgaatta	ttctgatcgg	catcacgagt	atcattaccg	1560
gaacgattcg	gctttttacag	gccctattgc	ctttttgggg	atagccgtac	ctcactttcg	1620
cgcatcctat	tcaaaagttc	ggactaccgc	atactgctcc	ccggcacatg	ctgtgcgggtg	1680
ctctgctgat	gctcgtgtgc	gacatgatca	cgcatgaccg	ggcaaaggct	ttgtattgcc	1740
gatcaaacgc	atcacctcga	tgatgggtgt	cccgtagtaa	tcatgacgat	cgctcgcaac	1800
cgcaaaaagc	gttaattcttc	aactgaacag	cgatgatgcc	ataccgacaa	tgtgaccctg	1860
acggactatc	taccggatac	cgaagcaaga	aaacggagcg	catcgtagcg	agctaactga	1920
cctttccatg	cttaatggcg	aactggtaat	gctgatgggt	cgaacggctg	cggcāaatcc	1980
acgctcatgc	acaccatcgc	aggattactc	cacctatttc	ggggaatatc	accatcgag	2040
gacgcgacac	acacgggtccc	gcatgagaga	gaaagccaag	atgctcagtc	tggtagtgac	2100
cgacaaatag	cagcgacgaa	tctgactggt	cgggatattg	tcgtcatcgg	acgtaccctt	2160
acgtcaatta	tcggggtagc	ctgaccgcaa	aggacaagta	gattggaatg	aatcgctcat	2220
agcatgccga	ctgatgggat	tcgaatcgcg	ccaaacgggg	aattaagcga	tggagaaaaa	2280
cagcgtgtaa	tgatagcccg	cgcttagccc	aacagactcc	cgtgatgctt	cttgacgaac	2340
ctacggcaca	cccgaacctgc	caagccgtct	ggaggtgatc	atcatgctgc	gcgaattggc	2400
agcaaaacga	acaagagtat	cctcgtttct	acccacgaaa	tggatctggc	ctgcaatggg	2460
cggaacaggt	atggctgatg	aacagccaag	gggagatttt	cgtggggcac	cggaggattt	2520
ggtactgaac	cactgttttg	aaaaagtatc	ggcaacgaaa	ctctttcctt	caatatagac	2580
agcggagcct	tctccgtaaa	cataaaacgg	ctacacctgt	ttctgtagaa	ggacagggtg	2640
ctgcctcaaa	tggacactga	gtgctttgca	ccggaatggc	tatgtggaat	ctgcaatgcc	2700
tccgaccgca	aaatcacctg	gggagagggc	tgctggattc	tgacaggggc	gattcctcga	2760
aaagcttcga	ctccatcggc	tccttgctac	aaagctgcac	gctcaccacg	aatgaatgct	2820
tgtgaaacaa	acaattatat	gcaaacccta	cgatagattt	cgacaaagaa	acgcctctgt	2880
tttttagtcc	ttgggcgata	ctctttacca	cttgaaagaa	agtatgatcg	ttcgcttcgc	2940
ggacgcagag	gagtcgtgag	cacctgcaat	ctcaacggcg	gctaccgaga	gacctccgct	3000
acgccttcaa	caacagttgc	gggagggacc	ccgacgtata	gccaaacgct	ctgtagggat	3060
gcgaggaaag	accatgatcg	aacactagcc	gccttagcgg	agaattggg	tctgcctctt	3120
gacaaaacaa	cgggcagggt	accgctgctc	tgatcgaaaa	tacggcgacc	tcctctcgcc	3180
aatacacgga	gtaacggcta	tggcggttgc	cacggcaggt	atagatgtaa	atggggacgc	3240
gcaggagaa	ctgcccgcata	caacgaattt	acccaacag	accgattaag	ccgggtacca	3300
tcaacgtatt	cctgttcata	gacgcctcat	tgatgcagga	acactgacac	gcgcctcgt	3360
caccgccacc	gaagcgaaat	cgcagccctg	caggaactga	tggcaaacag	catgtattca	3420
gaagatttgg	caccggttcg	ggaactgatt	ctctgatngc	catctgtaat	aaggagtcga	3480
gatagtgcct	cagaatagtg	gcaaacacgt	gcttttgggc	gaaatgatgg	ccaaagcgtg	3540
aaagaggcta	ttacggaagc	cttatccgga	cagacaagat	gacctctaca	cgtcaggctt	3600
cgatcgaaatg	cgagaccaa	cgctacgata	acgagagaag	cgatcgtctc	cgaatgcctg	3660
cgctgtatc	cacattgaaa	aaagaggttg	tagaagcagg	aatcgggcgt	atcgatcgag	3720
acaacgtctg	gtagccgcag	tggctgccat	tgctcattta	tgcgaccaa	atcctggcaa	3780
atcatctcgg	acaagagcat	gacctgcaca	gccgaaaaca	tatgcatacg	atactttcgg	3840
agagaggtat	ctccgaggag	gcaaacagaa	agacattgta	tgccgacaag	atgcgcgggc	3900
atatcgtaaa	gtgctgtccc	ctgcctccat	actcttgcaa	gaatactcca	caacagaatt	3960
attcattcac	actttaacat	atcaataatt	atgaaaaagt	ttttcttcgc	gctactatga	4020
ttggtatttc	agcgcaggct	tttgccaaga	cggacaacgt	cccgacaatt	cgctacgagt	4080
acacaatctt	cagaccgtca	cggctctattc	tacacgacgg	ccgtacctct	gaaaaagata	4140
ccggccaaga	tggaaactcat	ctcatgcgca	acatcaagca	gtccggcttt	aacaacatga	4200
ccgacatcct	caagcgcaaa	gttcgctcga	tgctatacaa	taccggggct	ttagttcgaa	4260
catggtatcc	gcggtttcaa	gccctccggc	aagtatgtaa	ccgtattggg	aacggcatcc	4320
ctgcgggaac	ggacaatatc	tctacgctca	acacgagcaa	ctcgaacaaa	tcgagatcct	4380
caaaggcccg	ttctcttcca	tctacggcac	aatgccatgg	gcggtgtggg	gaacattcat	4440
ca						4442

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

cgtaacggct	catgacttat	ccacacgacc	ggccgatatcg	acaagtttgc	cttgccctgta	60
agaacggaat	gcgacgtatt	ggagatttcc	actttgataa	agggttaagta	acgccgtcga	120
tctcgatcgt	ctccttttgc	tccatcgaga	gcgtgtgata	aagatgtctt	cgttggacat	180
atccttaaac	accaccgacg	ataattttcg	ggatgaatac	cttttttcat	tgctgtctat	240
ttagtttggt	cttggttttcg	ttcgctattg	acgtactctg	gattggtaac	cgttgtttat	300
aatcggatag	agattttccg	acggcaaagg	tagggatatt	atttacttgg	caagcagtta	360
ggccgagtca	aaaatgagtt	cgatcattca	tgcggacatt	catgctctta	agataagcag	420
gaggggacgc	atgctcgtgt	agtcgatgaa	tcgtgtgtcg	gatttacgaa	ccgcaatcgt	480
tgtaattgtg	cgcgagaatt	ttgaaaaagt	ggaacgtaaa	ttatttcggt	ttggttcgaa	540
ttttttttgt	tcccgaacca	aaataaaaaa	attc			574

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

ggcagatgat	gatacacggc	aagcgcaaac	aggctgcggt	ggagaccatg	aggagaccgg	60
ttggccggtg	ctattcagtg	ctctcaccac	ttttgttggt	tgctttcttt	tctggctatt	120
cccgtcgtac	cgatgcactt	tatcggttcg	ccacttctgc	cagtgtcctc	ttctccttta	180
tgatcgccat	tacggtatgc	cgactacctt	gagtttcggc	aaagaccatc	agccgaaagc	240
atcaggcgaa	aagaaggaaa	gcacgcggtg	gatcgatggc	tcgaagcctt	cggtcctggg	300
tgttggatca	tgagaagtct	gtctgggggtg	cttttatcct	tatacagtgg	tgatgctctt	360
tggattcttg	aaaatggaga	cggcattcga	catgaaagaa	caatggggcg	acggatagaa	420
tacgtcagca	atattccttg	ctgagcgaaa	gcgaattggg	ctctctttat	tcctatgata	480

ttatgatcga	ttgggagagg	agggaaggc	caagaccccc	gaagcacttc	gtgctctcgc	540
agcatcgctc	gccatgcaga	ggcatattcc	cttaccaagc	gtaccactcg	atattgaata	600
tcctcaagga	tctgaaccag	accttgacag	atggggacag	gcatactata	gcattcccgg	660
cgatgcggag	gaaagtggca	ccagcactcc	tcctatatga	gaatgcnggg	ggggagtga	720
gcccgaagc	tggatgactt	acgaatacca	gaccggttgc	taccctgaaa	gttgggaaaa	780
tgacctcttt	accaat					796

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 874 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...874

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

actgtcgtca	agcgatttga	ggaataccgg	catgagcatc	aggatttgtg	ccaatgcgtt	60
ggcaaaactgt	gcaaaacgaa	ccacctcggt	accaccgaga	gcgtctcgct	caaataagtc	120
atctcacggt	tggccttggc	tccttcctat	aagccttttc	gagagaagac	aatacatcgc	180
catagacagc	actcttcctg	tccttacggat	ccagtctgcg	aatgctcttt	cctcggcacg	240
cttacacctta	tcacgtcaag	acgagcgaga	ccgcggttca	taccgatcga	attctccaat	300
agttagcact	ctgagcatat	ttgctggcat	atttgatacg	ggtgcctgat	ctgcgctcat	360
ggcttccttc	cagatgcctt	gcttgatacc	gcaacttcga	tacgaggatt	gttctcgttt	420
tcgatacgat	cttccacacc	caagaagtga	ggtagcgatc	cgtactgccc	gggaaaccga	480
tggatcatggc	tagtcgtcag	ccttgtagcc	ttgcatggat	acggcagcga	agtaaaccgc	540
ttataggggt	tattgtcctt	gctgtattcg	gccggccggt	tgctcggcacg	gcatacacgc	600
ggaatacgct	gaagtcgccc	gtgtgacgcg	gccacatcag	ttgtccgtat	cgcctccgaa	660
cttacctaca	gagctgggag	gagcaatacc	atacgaacgt	ccttgaatac	atcgtagacg	720
atgaggaagt	attcgtgttg	gaatagaaaag	gctctacgat	gcagagttgg	ttctcgtctg	780
catttctttt	ttggccagtt	cttggcatac	ctcctgagct	ttgcgcagac	gctcatctcg	840
tcagtgatac	ccttgagctg	tccttctacc	ttgt			874

(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 393 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagattttatt	ttcttccctt	ttactttgct	tcgaagggtta	agaagaggttc	120
actcttgtcc	atggccggct	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagctga	ctacacctca	ttgccaagta	ctttttctcc	ctgaaaaaag	aatgaagggtc	240
cccatattca	cctgtagcat	agcgcgagcac	aggcttcact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttggtggc	tcagccttta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

ggttatgagt	ctgcgtcatt	tctgtgggac	tggttggtctg	attcgttctc	atccccact	60
caagaaaccg	atagccatca	agaggaagaa	aaagattttac	tttctcattt	tctactcggg	120
attagtgaag	agaatcgaat	ttctcgttgt	aaattatcgg	gaacttaagg	tgaatggaaaa	180
tcctatacct	tttgttttcc	tataaaacag	cacttctatc	gacaacgata	tgaaagnang	240
atcaacaact	cctacaggaa	atcggtcagt	gtgtggctgc	caccgtggag	gaagcgaagc	300
tctgcgaatc	aagtatctaa	gcaaaaaggg	cgaaatagcc	cgttgttcga	tgacttccgg	360
ctggtaccgt	ccgaagagaa	aaagcaaadc	ggcaaagtct	caatgagctg	aaaaacaagg	420
ctcaggagca	tatcaactcc	ctcgcgagcg	ggcacaggca	ggctctgcac	aagcttcggc	480
agaaaccgac	tgacacgaac	atcatacccg	acgagactcg	gaacacgcca	tccgatctcc	540
tggtgaagca	ggagatctgc	gagatctttg	ccgcctcgg	cttcagtagc	ccgacgggcc	600
ggagatagag	gacgactggc	atgtattctc	ttcgatgatt	tcgccgaaga	ccatcctgct	660
cgtgatatgc	aggacacatt	cttcatgagc	atcgccccga	tgatcatcct	cgcacgcata	720
cgtccagtgt	ccaaaccggg	tgatggaaaa	gacacaaccg	ccgattcgcg	tcatttgccc	780
cggggtacct	accgaaacga	agctatctcc	tatcgggcgc	attgtttctt	tcacaggtgg	840
aagcactgta	tgtggacaag	gatgtttctt	tcgccgattt	gcgcaggtgc	ttctttactt	900
cgcacaggaa	atgttcggag	ccgaaaccaa	atacgccctc	gcccttctta	tttccccttt	960
accgaaccgt	ctgccgagat	gacatctcct	gcaatatatg	tgggggtaaa	ggttgcaact	1020
tctgcaagct	acgggatggg	tggaataact	cggatgcggc	atgggtggatc	ccaacgtatg	1080
gacaactgcg	gcatagacag	caagaaatac	agcggctatg	cgctcggatg	ggtatcgaac	1140
gtatcaccaa	tcttaagtac	cgagtcaaa	accttctctt	ttctcggaga	acgacctcaa	1200
cttcttgga	cagttcaaga	gcgtgactaa	ccctctgata	agtatcgaat	gcgcaaggaa	1260
gagcgataca	aagcgttatc	gattgggttg	ccgagaatat	gccggtggcc	gaaacggagc	1320
tgcgtagcgg	gaccccttcc	agt				1343

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

atctcttttcg	gtacggctca	cacggctctg	ggtaatgtcc	ggaagctccg	tacgtcttgg	60
ctaaggatac	ccattacgga	cctttcggcc	caagggtacc	tttaacggca	tttgccagt	120
catctacgcc	cttcttcaga	aggctgcaga	ttccatatcg	aatttgattt	cttttgccat	180
agtctttatt	atztatattt	attttttttc	ttttttggag	gattattgtc	tcttccttta	240
ccactgggtt	tcctgttttt	gaaggccaac	ctgcagtgtt	aacttgttct	ttgattcttt	300
tgccatagtc	tttattattt	atttttttct	tttttgagg	attttgcttc	ttcctttacc	360
actgggggtt	cctgtttttg	aaggccaacc	tgagtgttaa	cttgttctga	tttttttggt	420
ttgcccatta	gatgattgcc	agacatcggt	ttggcgcatg	atgatata	tttcaccctc	480
cagctctatt	cagtgcgcgc	atatttgccg	tagagtacgg	tgtctcctgc	tttgagcaca	540
tctcttcgtc	tttcgtgcgc	ttcccgcacg	cgattacttc	acccttgaag	gtttctcttt	600
ggccgaatcc	ggaataatga	tcccgcctac	tgtttttctt	ctgctgc		647

(2) INFORMATION FOR SEQ ID NO:834

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 289 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...289

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

tgacaatccc	tcattttttc	aaaggctctt	atatcngttt	tactcgtcgc	gttcgattgt	60
tttctttccg	gccggggaaa	gtttccccga	cagccgacaa	aataattttt	ccggccggaa	120
aatctctatc	caaagggttc	ggatatgac	caaagccttt	gaatacatat	ccgaaagctt	180
cgtttatata	tccgaacctt	tgaataaaga	attggattat	ggcttttnca	acttttccgt	240
actgcgaaaa	aacttttttc	ggccgggnac	gattatttct	ttttataaa		289

(2) INFORMATION FOR SEQ ID NO:835

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 956 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

acgatcggca	gagagaccag	cccgcgaag	aggatgggca	tcaggatcgc	atcacgagga	60
aggatttctt	tcggacgcga	atcatgtatt	cgcgttggtg	atagtgttaa	tgttgttcat	120
aacgtcagtg	tgtatcgggtg	gtttcttttg	tgcttggtac	ggattctctt	cctctacgcc	180
gtggcctacg	gtcttggtgaa	tatgtcgtgc	atgctcggga	tctcttcgta	gaaggacacg	240
agccgaccga	ctcgggcagg	tcgcgcacga	gatcgcgggt	gtgcgccgtg	gttttttgcg	300
cactctcagc	ttcgtcatgg	aacccggtag	ctccgtcttc	tccttatccg	gatccggccg	360
aggtagtctg	ccggcagctc	gccttcgact	acatgcggat	aatgccgagg	ctgttctccc	420
tacgcacttc	gcgcacggct	cgtggagcac	tacgcgcgat	ttgttgatca	gtgcgaagtc	480
gtcgcatact	cttccaccga	ctgcatgttg	tgctcgcaga	agatgacggg	acgctccttc	540
cggccagctc	cagtatttca	cgcttcagca	ggtcggcatt	gaccggatga	atccgctgaa	600
gggttcgtcg	aatatgagca	attccggttc	gtgaatgcgg	tgcacacgaa	ctgcaccttc	660
tgctgcatcc	ctttggacag	ctcttcactt	ttttgttcca	ccaaggcatg	atgtcgaact	720
tctcgaacca	gtcgggagcc	gcttgccgcg	ttcgtgcttg	ttcactccct	taagttagcg	780
tagaagatgg	cctgctcgcc	cactttcatc	ttgggggtaca	gcccccgctc	ttcggcaggt	840
agccgatgcg	gcgaatgtct	tccgcctgca	tgggatggcc	gtgaagatca	cttctccttc	900
gtccgggagc	agtaatgcgg	ttgatgatac	gatcagactg	gttttgcccg	gcttcc	956

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 605 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

gcacgtcctg	cagtctgcgt	gagcgaacga	tcgcgagcga	ggaatccttc	ttatccgcac	60
ccagaatagc	cacaagcgaa	acttccggga	agtccaatct	tcgcggagca	gattcacccc	120
gatgagtgcg	tcgtagaccc	ccttgcgagg	tcttccatga	tacgcacacg	ctccagcgtg	180
tcacatcgcg	tgtgtagtag	ccggtgctga	taccgtggcg	tagcaggatg	tcgctaagct	240
cctctccata	cgtttggtca	gggtcgttac	cagtacgcgc	tctttctttt	cgatcagcgt	300
gctatctcct	ccatcagatc	gtccacttgg	tttgccgtcg	gctgacgtcg	atgatgggat	360
ccagcagctc	ggtcggacgg	atcagctgct	cgcgatcacg	ccttcgcttc	tgttcagctc	420
ataagtcggc	aggcgtggca	cgatataaag	ggtcgggggg	gtgagagctt	cgaactcgtc	480
gaagcgaagc	gccgattgtc	gagagcggca	ggcaggcgga	atccgtattc	gaccagattt	540
cttgccgcaa	cgatcgccct	cgtacatggc	acgtatcttg	cggtatcgac	atggctttcg	600
ctatg						605

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

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ctttggggaa agaaagaggt aggaaaacgg ctatcagggtg atcaggaaaa agccaagcgt      60
ttgcttcttc cttacctctt tatggggacg gtggcattct gcctaaagtc ctactgagtg      120
cctacacata ccacccgatg aggcctcttt ttcggatatg tcagcagctt tctttttccg      180
gcaacgaatg ctattccttt ctgtgggttt tgccctgctt gttcagtcta ttttgccctg      240
ttgtttttat cctcggaagt ggatggaggg accgaagatt ttcggagctt acctatcgcc      300
tgccttctgc atatatgcac cgaatacac cctgtggcat tcgggatgat cctttctgta      360
ttatagcagc ctttaacaat tttcactact tcttctgggt atgatgttat accgctattc      420
cgatcgata gtttcagac ggtatcggtg gccctgctta tcgctttcca tgtggcactt      480
ttctcccggt ctttatgccc gagcagtcac cgttcttggt ggtattgaac tggctctata      540
taccctgttc atcgttgtcc tttatggcgt gtcggtaaaa atcggagaaa ggtgatgcct      600
gtccatttgc ttcacggtat aggggtgtac agctatccat attcattttt tcatgggttcg      660
tgctggtcgc attgagaata gtccttatga ccgctatgag ctgagcacca tgatgatcaa      720
tgagctatt gccatagttt catagccggt ttgttcatac cgctttacct gtccaagttt      780
ttggcaggaa acttcgggtt tctctcaagc cgctggtcgg attgtaagca gaccagagga      840
gctgcgcaag aagggaaagt taaggttcga acttacgaag agaaaactat cgataacgaa      900
cggacttaac gacatgattc cggccgaatc aggaagcctc gcaaatagcc atagacacgg      960
ctcacactcg cagagtccgg actgaagttg tcagcatatt tattcccgga ttcacaggtc     1020
ggctgaccga agaacggtat tgtcggtgca aaccaatttg agaaacatct qcatcgttca     1080
tcaggacgaa gttgtagacc tctcagcctc gtgacaaatt ccaatcggtg ccttccttat     1140
aagctgtacc tggggtgatg atgaaagacc tgttcagaat ggcattctccg gccggtagaa     1200
acacgtacta tctccggcca gcatatgata gaatccagtt cgtagaacga accatcgagc     1260
atatccatcc ctttttctca cgctccaacg taatctgctt gtccagatcg attcgctgct     1320
tttcagttca tcccgaacgc tttggcagat ggcatatac tcttccaaat caggcgacca     1380
taccacatca gcgtgctgtc gtaatccatg cgagttagtc ctacttgga aacagattgg     1440
gtgtaaaccg cttcacgaac actatccgtc attncggatc gtatatatta gcaaagtgc      1500
catcggccac ataaagttca ccatcagatc cttcaactt      1539

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(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

gggaatgtct	tcttcaatca	tggtcgcaat	cggatcgatt	tcacctacaa	ggcacagatt	60
tgatctacac	caacgtatcg	aaagaaatga	gaatattcgc	tttgaaggac	aagcgaatgt	120
ggtactgcct	tacggctttg	gttttcggct	tcattattcct	acacttatga	tcgatggaag	180
gcgaccgata	aggccgaact	gagatgaagc	tctcaaacac	ccgccctcat	gcagctactg	240
ccacttctct	tatggacata	atttttcgaa	gaattacaga	ctagcctcca	actttccacg	300
cgcttccttt	ccgatctgaa	aacagggcgt	atgaactccg	acggttggtt	gaggaaataa	360
cgtatccggg	ttatacgatc	tgctggtttg	atttgaaaat	catttctatc	ggaactatac	420
gctccatata	ggtgcgagga	actgttcgat	tataaaccca	aagcattggc	attcaattcc	480
ccgacatcac	cggacgtatc	atatacgggt	tggttcggat	cactttctaa	tacgacttat	540
tgcaacagaa	atataattcg	ccacgatgaa	gaaaaaaata	atttatcttc	ggtagccatc	600
ttattggtgg	ctatcggtt	tg				622

(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

gggctgggca	gttgctggtg	tcaggtcttc	ggatcgctta	caccgaatgg	caggaggcta	60
ttcagtatgt	gcgcaatacg	ctgaatatcc	cctatcagtg	gaagtcctgt	gcatcatcgc	120
tatcggacac	aaagccgagc	acagggaccg	cgccctgcat	cggaattgaa	gtgggagAAC	180
gtttttatag	gcgaattccc	gattgggaga	gtgtgtcgca	tgattgatcc	tgtaggactg	240
cccgaacttt	cgtgcgcata	gtgcttgctg	gcagtggaaa	tctggctacc	caaaggctct	300
ggccttgctc	gaagccgcca	gtccgcccgt	tcaggtatgg	agcggaatgc	cgagcatgcc	360
gaacggttgg	cttccatgct	gccgggagca	acgctaccga	tcggacagag	gagctactct	420
gcgatgcaga	gctttatctc	ctgcagttag	cgaccatgct	ctcgaatccg	tagctgctac	480
ccttccgccc	catcggaat	atgggcacat	acggctggca	gtatgccgat	ggataccctc	540
gcccttatca	tgcgagatc	gggtcttct	atcctcttca	gacattcacc		590

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1104 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1104

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

```

cgggtgtaagt cgccaattag gttcttctat gaaatctgtc ggagaggttt ggccatcggg 60
cgcaccttcg aggaggctat ccagaaggga ttgcgtatat cggtcagggc atgcacgggt 120
tcgtagagaa caaagagctc gtgattccaa tatagacaag gcactgaatg agccgaccga 180
cagacgcatt ttcgtctaag caaggcattt cgtcaagggt acacggtaga taaaatacat 240
gaactactaa gatcgatcgc tggtttctgg aaaaactcta tggtatcgtt accctgcaga 300
ggaaatggaa gagttcgaca agctcgaaga tctttcacct gctttttggc tgaggccaaa 360
ttgcgcgggt tttccgattt tcaggtagct cggctgtact caagccggat gctacttcga 420
tgaaaagcgc aaccaatcag gacgtgccat gcgaaaggag ctgggaatcc taccgggtgg 480
taagcgtatc atacgcttgc agcggagtat cctgctcata cgaactatct ctacctgact 540
atagtggcga tcgtcatgat gtagcctatg agacgacaag cgttccgtgt tgtactcgg 600
tcgggtgcat accgtatcgg tagctcgggt gagtttgctg gtgtgggtgc aatgctctgg 660
ctaccatccg taaggaaggc tatcgggtccg tcatgatcaa ctataatccc gagacgggtga 720
gtacggacta tgatatagt acaggctcta cttcgacgaa ctgacattcg agcgcgtaat 780
ggatttcttg aactggaaaa tctcatggc gttattgttt ccacaggggg acaatcccga 840
acaaccttgc agttcgtctc gatgaacagc atgtgcccac cgggtactt ccgcacagag 900
tattgacaat gccgaggatc gtcataaatt ccagccatgt tggataaatt gggtatcgat 960
cagccccgtt ggcaggagct tcttcgatgg acgacattga cggattcgtt gccgaagtcg 1020
gttatcccg tttggttcgt cgagctacgt cctttccggg gcagctatga atgtgtgcc 1080
aatgatgaag aatttcacg tttc                                     1104

```

(2) INFORMATION FOR SEQ ID NO:841

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4902 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

```

ggcttcgata ctgcagctg tgggatcttc tccagcattc acgagcagat gcggacatca 60
accgcggagt cgaccgatcg gatcgatccg agcagggacc ggagaccaag gtatgatgtt 120
cggctacgcc acgaacgaga cggagaatac atgcccctga cagtggatct ggcacaccac 180
ctcctctacg aattggcgct atccgcaagg agccttcttc tccgatgcct tatttgcgcc 240
ctgatccaag agccaagtga cgatcgaaca tgacgatgaa ggcagacccg tccgatagac 300
acgatcgtga tttccacca gcatgacgaa tttgtccaag catggacggg atttcagaag 360
cagaagccga ccggatgatg caggagcgca tcatcatgac atagtacca tactgatccc 420
ccgagtgaat atgtctgtaca accggagatc gcagccctat tcgacgaaaa ggtacgccta 480
ttcgtcaatc tacgggtaag tttgtgatag gagggccaca tggagacacg ggcctgacgg 540
acgaaagatc atcgtggata cttatggagg cagggtctct catggcgggg agcattttcc 600
ggcaaggacc cgtccaagggt agatcgctcc gcggctttgc cgcccgacac atagccaaaa 660
acatgggtggc agcgggctgt gccgacaaat gcttgtacag gtagcctatg ccatcggtgt 720
agcagagccg gtaagatata gctcaatacg aaaggccgga gtcattgtgg tctatcggat 780
ggccaatagc ggagaagatc aagaagattt tcgatatgcg tccctacgcc atcagcaacg 840
actgaaactc cgcaatccga tatacgaaga gaccgcagca taggccactt cgggcgcgaa 900
ccctacgaag catacaaaac ctttgtcgat ggcacggaac ggaacagatg cgaatcgtgg 960

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agctattcac	atgggaaaag	tggattacgt	agataagatc	agggccgagt	tccgtctgtc	1020
gtaatcacac	ctgcctcctt	ttatcgcaag	acaaaggctc	tgccattgac	ttcgcttttt	1080
gctttactaa	agcttggcag	acagaagctg	cttgttcctt	tcttagggat	gcagagagga	1140
agtttattct	accggttttt	cacttcatca	gctacaagac	gaccaacggg	gcagcagagg	1200
atagatagat	cgtatcgctc	actgctcggt	gagcgttccg	caccacaact	ccggcagagt	1260
ggtattgcca	agcgccattt	cagcccttcg	gccgtgacgg	ctgatccgct	gaaactgaat	1320
atagaaaatt	gtctccctcg	cttccacttc	tatgcgagcc	ttcccgtaa	aacccaaaaa	1380
cattccgtaa	tccgtaggca	tcacgatctt	ttcgaaaaag	cggatatatc	gggcagatgt	1440
gccagattgc	cgacaaaatg	atcttcacga	gccccgatgt	ccccagcaga	cagacctcgc	1500
gaggggaata	ggctctggcg	agaatgtaac	tgtcttcgtc	agatcattgg	tatcctgctc	1560
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agggaaagaa	aatataggtc	gatgctgatt	gtggcctgtc	gttgcatctt	gcgccaccgg	1860
aatatcccag	aacggacata	acggatttga	cggcaaagac	gacagtgggtg	aatggctgcc	1920
ggatttatag	aaaagggaata	agctgatgat	attggctacg	accagcacac	ccagtgtctg	1980
cggatgcgac	gcgccaacca	aatcatccca	caaagctgat	tacagtggca	agcgtatcgg	2040
cccacggcac	aagactatcg	tatagtggga	caacacatag	aacatcggga	gaaaagccac	2100
cgtagcccgag	caaggctgat	ccacaggaca	cgcggggaga	tgatacgcg	ggcacctctt	2160
ccgtcccttc	gcgggtggcga	agccacatca	cccagccgat	aatacgggtg	tcagatagta	2220
gacattgatg	agcacattgc	cgtagaactg	cgcgccgatc	agagataaat	gtagaagagc	2280
ggcaggacga	tccccacagg	ccaagccaga	cactcgcttc	atattcgaga	tagaccctaa	2340
taaaattgac	gatgctgctg	ccagctcgat	gggatgagcc	acaatgaatt	ggatcacccg	2400
ttcatcatcg	gattagaaat	cgattgtcag	actaccagct	gcattaaatc	ggcctgagga	2460
taataacgca	gatcggcata	tgcacttagt	tctccggatc	ctgtacgtaa	ccggcatcgt	2520
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cactctctta	acgaagtaac	cggcagcaca	tagccgaggg	ggaggtcgtt	cacccaatag	2640
gaggaagcat	gcgatcgctg	cgtgtgtat	tgtccagata	ttgcttgctg	acgaacggct	2700
cgtccaagcc	atttcgaaac	cggcatgaga	gagggtgaag	atgcgccggc	aatgacattg	2760
ggcgagtagg	ctatatccgt	gctttcgagg	gtccctcctt	gagttcgagc	cagttgtagt	2820
ccgcatcata	tacggatgta	tatgtacgta	gcggtcgatt	ttgttgcgac	tcatatgtga	2880
agaagcatcc	cacgcagcaa	acgaggaagg	atctgccaac	cgagagtcag	ctccagtccc	2940
tacggtagct	ttcggggagc	ttgcttgtga	gcatctgtcc	cacatcgcta	aacggccatc	3000
cagcacgagt	ttggtccttg	attgcatata	atagagacta	ctccggccga	caagaggggc	3060
gaagcatagc	ggtagcccag	ctcatagcga	tcagtcgctc	aggcgtagga	tactgtccta	3120
ttccggcttc	gggtgattgg	ttctgttagg	ctcggcggtg	gctaccgcaa	cagaagcata	3180
ggcagatgag	catcgctcgaa	actataggtg	agaccggcct	tcggattgag	gaagggaagg	3240
tcttgtccaa	atcgatgtgc	tgcatacttc	cctgtacctc	atctattcgt	cctgtgatgc	3300
gtttatcggt	tagccgatgg	tacgatactg	gagtcggcat	acatgttcag	ttccggagtg	3360
atctgccagt	tggtcttggc	aaggctgcac	cttctctttt	gtctgccctg	ttccgataat	3420
attcgaagtc	ggagctaagg	gctgattgta	ctttttgatg	taagtgatac	ggccgaagtg	3480
tctcctttat	agatattgcc	cgaggccccg	aactgcaaat	cccatgcacg	gtgtgccagt	3540
taagcgaacc	gatgagtcct	ccgaagtcat	tgtccagtag	ttctgacgga	tgagatccgt	3600
ttctcttcacg	gtcacactgt	tttccaatag	ggctgcagtg	catattcctt	tagttacgtc	3660
cggtagcgata	ttcgtcgtat	agccatatcc	ggcgtgtgag	tgtgccgtga	ggttgaggat	3720
aacgaaggag	agaagctgtg	cgtcatgatg	gcatggtagt	gacgctgtc	gtattgtcgg	3780
tattgtggta	gtagtgcggg	actccttgcg	cgtccacgta	caaagaccgg	cactgtttga	3840
tcggcgggcca	tatttggtct	catcctcctt	gaaagaccgt	tccatgcgat	acccgtaact	3900
tcttttcctc	cgaaagtgat	aacctgagag	ccgtgttgct	accgaaatag	cccacctgtg	3960
cgaaataggt	ttcagatcca	cgcttctctt	atccacgtag	ccgtccgaac	cgattttgac	4020
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ggaatgtgcc	gaacgaacct	ccgctcaaat	cgacacgcca	taaggagcca	gtcccaaat	4140
atccgtacgc	atattgacac	ttgccccaaa	gctccggcac	cattgggtga	agtagccaca	4200
cctcgtgca	cctgaggtct	tcgatggaag	aggcgaagtc	gggcatattc	acccaaaaaga	4260
cggctgagat	tcggagtcgt	tgaggggtac	tccattggta	gttatgttga	tggattggca	4320
tcgggtgccac	gcacgcgaaa	gccggaatat	ccgatacccc	tccggcatcg	ctggtggcta	4380
ccacggaggg	agtcagcatc	agcagatagg	gatgtcacga	ccataattgg	acttggaaaag	4440
ttcggccttg	cgaacgtttg	gtaagcgaca	gggtttttcg	ccgtggcgcg	agtagctacg	4500
acctgtacgt	ctggagctgc	acattgctaa	gactatctat	ctcgtgtgtg	gagacgggtg	4560
ttgtgccgtc	aggcagaaaag	gcaggacggc	taaggcggca	atcatggaag	ttttttcata	4620
aatctcttat	cattgaagtt	ggacaaaaga	gagagggggg	aatgattgct	tcgccgtgaa	4680
gatagtcaga	cggagagttt	cctagccggg	attatccggg	tcaggtgatg	agggtttggt	4740
ctcagccatc	caccattccg	attgctacag	gaagcacccc	ttctcccaat	tttatgggac	4800
aagataagaa	aacgttcgtc	cttcagttat	cgggacgata	ccgctcggca	tttcatcttc	4860
gagaatgctc	aagtagctga	tatagcggct	ctcggctatc	ct		4902

(2) INFORMATION FOR SEQ ID NO:842

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

```

ggggatctac tgcattacgg aatggctgct cgactgaggc gaagaggtgc tattcgacct      60
cccaantgcg ctcgaaaggg aaaatcttga ttctgatgtt cggcgcttgt ccatttgggt      120
cacttgaaan cggaatggct cgtacacgac tgtatcgccc acatggggga gttcctgctt      180
gatttccaag aagagccact tagcgtatct acctcgcccc ccnattcacc gaaagcattt      240
tccggagggtc nagatagtgt cgaacatcng agacatacgt ntntccttca anaaataact      300
gcnatcccccc                                     310

```

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 700 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...700

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

```

agtctgtttt ttagaacctt ccaaatatag acattccaca gctaagtaat gctccgcctt      60
tgatgggaca gtcgtatctg caataacctgt ttgagctctca tagagcatcg agacaaacaa      120
taacctcccc aaaaagaaaa gggggggcga ccacatgccg gctccccctg cttttccctt      180
atcaggggtct tgttttttag aatgaacat tgaatgtagc caaggctgca aaaacttcgc      240
ccccgattca tatgtcgtag tagctcctgc cccaagggtg ttggagatgc gatatcgtag      300
gccatgagag caccaaggct aaatttgcca ttggcatacg tgctgccata gcatgcttat      360
tgtctacatc catatataaa taattattgt tttataagaa agacctgcct gaccggctaa      420
aaccaaatca tgacggctgt tttccaaatc agcttgatgg ggctgaaacc ggcaacggcc      480
ataaaggagg agaacttcca gaattaagac ttttccaagt ggcacccctc tactgcgcac      540
ttccagataa tggatatgaa gagcagttgc ctccgcatag gagaatccta ttgagactgt      600
tgcgggggag tttcattgag ctcttttgct gcagagcgat tcttagtgct ttcgggaaaag      660
gtcaaacctc cggtatatgg acatcgggca acagaaattt                                     700

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(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

```

ccccgattttt atcaggacag caaggttact tgccggatgc gaacaaaatt cagggtgaaag      60
ctgaaaatta tgaacaggca gtagccatta taaaaactgg caagggtgaag acgtgatgaa      120
ccatgacgat gaagaacagg tcattttgtt gaaggagaaa cgctattgga tacctccgaa      180
aatctttctc ccaaagaaac ggaggtcgtc cgaccataga ggtcttcgat gacaagggaa      240
aggaatcacc aataatttga acccataaat atcagagggt atggctaata tatgaccaat      300
ctgttcttct gctccacaga gaacaaagag aacctgaaaa cggagaaaac tacatgacgg      360
atactttttt cgggagtatc ttttcctgtc ccaatctttc atctgttggtc ttcgatcccg      420
gactgccgat aatgcaatgt acacagtcgc tattgaaggc tgacgatgtg caaaaagacc      480
tcggcgagaaa tcaggtcgtc cttacacgaa tgttagggtc accttacggg ccgtttaagc      540
gtccttacag accggttacg tcgaccttac agacc                                575

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(2) INFORMATION FOR SEQ ID NO:845

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1010 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

```

ggcggggtgg ctatccgtct cctacaacct cgcgggcgat tattcctggt ggaaacggga      60
gccaacgctc atcgccggtt gcccacaatac cggcatacgc ccgtctgacc ttgctgccga      120
tcccccgctc gtcgctgcgc atggcagcga atataacgcc acgactctgg agccggggca      180
tgtacatgag gatgtttttt cgactgcgaa gcacgctaca gtttcgataa ggtttgggaa      240
gtatcgtttc gatgcgcaat ctgttcgata gtcgcatgta tcttatccgt caacgacgga      300
gtacaacgct ttttccaccg ctatcccatc tcgcggtcgc gaatgcttgc cacagtcttt      360
ttccgctact gattttcttt attcgggtata gcgcccagga tcgtattgag attctttctg      420
aatttcggta cgatttttct ttcggcgagt aatttcgtcg atcgaaattac tcgctgcagc      480
tatgcaaggc aaatcttggc aacaaaattc atagaatccg acctgcaaac atgaatttcg      540
caacaaaatc gcttcctgca agctgcaaac atgaatttcg gcaacaaatc gcttcctgca      600

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560

agctgcaata	agcaatthttg	ttgccaagca	gaccttttgca	agcttgacagc	aaggaatttc	660
gtcgacaaaa	ttacacaatg	cataccgcgg	caaggaattt	cggcaacaaa	atcatcaa	720
gcatatttca	gccaaaattt	cgatagagaa	atttcaaata	catgctttcg	gcaatcaatc	780
tttgacataa	aattttccatt	gccgaacggc	gataagaaac	tttgccaccg	aagtgatatg	840
tattcccctt	aatcttttatt	ccaatatata	tgattggcag	gaaatagttt	catccactaa	900
attacaataa	tcgtatgact	gcttttcggat	aagcttaaga	caagaaatat	ataattctat	960
cggtttttcta	tcacacaaca	attattttact	actttttatcg	aagcaaacga		1010

(2) INFORMATION FOR SEQ ID NO:846

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

ctgtgagaag	aaactgctgc	gcaggggtgga	cctattcgat	gtgtacgaga	aagaacttgc	60
ctgccggaaa	gaagagttat	gcagtgcgct	tcttcctggc	aatgatgaga	agacgcttaa	120
cgacaaacag	atagaggcta	tcatggcaag	atacgggacg	actctggagc	aaaagctcgg	180
tgcgcaactc	cgctgaaatc	aaacgaaaat	cgacaaaata	agaatcgaca	tatcattatg	240
ggacggcatt	tgaatatcgt	aaagcaagga	aaatgaaacg	ctggggcaat	atggccgcgt	300
cttcaccaag	ttaggaaagg	aaatcaccat	cgctgccaaa	gaagcggccc	cgacgtggag	360
accaatccgc	gtctgcgtat	cctcgtgcag	acgccaaagaa	ggagaacatg	cgaaggaga	420
acgtggaacg	cgccatcaaa	aagctacctc	caaagactat	acggactaca	aagagatgaa	480
ctatgagggc	atggtcctta	cggcatcgcg	atcttcgtgg	agacagctac	ggacaataca	540
cacgtaccgt	ggccaatgta	cgcagctact	tcaacaaaca	tggcggatgc	tcggtacttc	600
cggcagcttg	gaattcctct	tccagcacia	atgcgtattc	acatcgtcaa	gaaagacgat	660
atggatctcg	aaagccttga	actcgactga	tagactacgg	tgtggacgaa	ctggaagagg	720
ggatcctcna	gagtcaggty	c				741

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

caggagacca	gcgtaggcct	acggtgctca	ttacaacatg	ctaattatcg	tgcattatgg	60
ccaattaaag	taaaacgaga	acgaccttag	aaattttcct	gttttgcgtc	ttcaaaattc	120
gtttccccc	ttgtttggga	agttcagctc	aatagcagat	cgacgacctc	gactcccctt	180
gtcgtatttg	aagcatatct	cttataatag	aaagaagaca	cgtgaagatg	gtgatgatgt	240
cattttcagt	acacatcgct	tttctttatc	tttgtagagc	atggtttcga	atttggaccg	300
gcttttgaaa	tcagatactt	ctaagaaaacg	tttcaaagaa	ctagttattc	gaatcgatta	360
cccctgtgca	atgggtggctg	atagcaggta	tctgctcttt	gtttttgaga	tttttaccct	420
gggtttcttc	ttggcttgat	cgtatgggag	cttttgctgc	cattataaccg	gcggccttgg	480
ggttgtctat	gtgtggcana	ccggtttttt	atcgtggctt	cgctgctctc	gctcttcctc	540

(2) INFORMATION FOR SEQ ID NO:848

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 896 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

gattaagaac	caagatgaaa	aaagtatttc	aagatcttcc	tttgggggtg	gttggccggt	60
gcagtgatcg	gcacttttat	gttcctctgg	caaaagtcaa	agccaaaccc	aaagagtacc	120
aaatcgaaa	ggtaaccaag	caagacagat	cgagagcaag	acggtgatca	cgggtacggt	180
agagccgcgc	gacgaatgct	catcaaacca	cagatgaacg	gcatcgtagc	cgaactgctg	240
cacgagccgg	agacgtggta	cagagcggag	acgtgatcgc	ccgcctcact	gtcgtccgga	300
aatgatccag	cttagtcagg	ccgagagccg	tgtccgtatg	gcgagatttc	atacagagca	360
ggcaaagaat	cgtatgccc	cagcaaagat	ctttcgacaa	atcggtcatc	gctctcgaag	420
agttcgaggc	agccgaggca	atttcgcca	aatcaaagag	gaactgtcca	atgcgcgtga	480
agccatggag	tcgtaaagaa	aggtgccagc	agccgtacag	ccaaacagag	caatacgtg	540
tgcgcagcac	ggtaacaggt	aagatcctga	atgtcccgg	caaagtggta	attcggtc	600
tcaggccaat	acgttcaacg	agggaacgac	catcgctcga	tagcggatat	gaacgatttg	660
atTTTTgtcg	gcaagataga	cgagacgaag	tcggtcgcat	tcgactgggc	tctcccatgc	720
gcatttcggt	gggagatttg	ggaaagaaa	ttttcctgcc	acagtagaat	accttgcgcc	780
caaggaagta	tcagtaaacg	gagctgtact	gttcgaagtg	aaagcttcgg	tactattcca	840
agcgacagag	taatccgtgc	cggctatagt	gccaatgctg	aaatcgtact	cgaagg	896

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

gagaaaatta	caagagcaag	tcctgatatc	caaaagacga	agggtttgaa	cgatcatcat	60
atttatctgc	aaggaacatt	accgcaagga	aaccaaataa	acgaaataag	gtaacatgat	120
tatctatttt	ttctatttgg	atgagcgcgt	tcgatagcgg	aattaccgat	attaagcagg	180
gtaaaaatcgc	tgtccgcgga	agttcgtaca	cattacgacc	gtcgatgacc	aaagatgcag	240
ccatctttga	gagagagctg	accaatcagg	cattctgaat	tccttccatt	ccgtacatgg	300
aacagagcct	ctgctnccccg	gactggatcg	nacatatccg	tggatattcc	aatttggcgc	360
ccaatctttt	ttgtgcctct	ttcatcgnca	cagatcggac	acccgaactc	tgcaaccaac	420
ttccaacagt	ttctcgatga	gaccagagaa	ggagcttcac	gcatatcatc	ggtaccgggt	480
ttgaatgaca	cccccatatc	gctacac				507

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2681 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

gccaaaggat	gggcccggcg	tattctcttc	aatgagcaag	cgaaagccag	ctggatcggt	60
tcttcgcacg	acccgatacg	ctcagcctcg	gtatctgcac	ggctgccagc	tgatggccga	120
gttggaactt	ctataccccg	aacacgactc	aagcacaagc	ttgtccacaa	cgaatcgcag	180
aaattcgaaa	gcacatcgtc	actctcgaaa	tcccgcataa	cgactccatc	atgctcggca	240
atctgccgga	agcaagatcg	gtgtatgggtg	tgctcatggc	gagggtcggg	tcagctcccc	300
tacgaggaga	aagcctacca	tgtggtggcc	aagtacgaat	acgcggctat	cctgccaatc	360
ccaacggatc	gccacaccgc	atagccggat	tggcagcgcg	gatggccgcc	atctgacgat	420
gatgccacat	ccggagcgga	gatattcccc	tggcagtgcg	gttattatcc	cgaatcacaa	480
cgacacgaac	tcaggtgaca	ccttggtatg	aggctttccg	caacgcttac	gagtggatac	540
caagcagggtg	aaaaatggat	gatcgtcgcc	cccaactgac	agaggagcac	tgcttttccg	600
catcgactc	acgcatgtaa	aaggcgtggg	tagcgtgtgg	caaggcagct	gctttcggct	660
atgggcagtc	ccgaagccat	cttttcgaca	ggaaggagct	ggtacagagg	ctaccgaaaag	720
cacctcgccg	cctgccgatg	ccatcttctc	tccttcggtc	atggaggaag	cacgccgaaa	780
gttgatcaag	ccctcaaagc	cggctctgaat	atgtatttca	tcaccgatga	taatatacctt	840
accgcttgaa	agaatgtgtc	gacgccccca	tccttcttta	ttcaaaggca	atgtcgatct	900
ctcgccacgt	agggtgctga	gcattgttag	tcgcgcaata	tcacggccta	cggacgtaca	960
gccacggagc	ggaatcgatc	ggattggctg	aaaccatccc	cgatttgctt	atcgtcagcg	1020
gactggcgtc	ggcgtcgatg	tcgcagctca	taaggccgct	ttggacaatg	gcttgcccct	1080
gtagctgtat	tggcccatgg	attggacagg	atttatccga	gcggtcacgt	tccattgcta	1140
tggagatgct	ccgaaacgga	ggcttgctca	cggattccct	atggggactg	aaccggagcg	1200
attcaatttc	gtcggtcgca	atcgctcgta	gcaggcttgt	cggacgccac	acttgtgatc	1260
gaatcggcgt	aaaaggaggc	tccctcatca	ctgccggact	ggcattcggc	tacaatcgcg	1320
aagactggct	ctaccgggac	gagccacgga	tagcgttcg	gccggctgca	atccttgata	1380
agggatcaaa	aagccgcgct	gtcagctcgc	gctcaagatg	tctgacgctg	ctcgattgga	1440
gttctaccat	agacgccaaa	cctcagacat	gaatttccgt	cccgatagtt	ggccggatac	1500

ccccgtagcc	gaatgtcttt	cagagcaggc	acagcctcgg	tggacgagct	gacacgcgct	1560
accggactcc	tataaacgat	gtttctgctc	agctttttcga	cctcgaattg	gacggacggt	1620
acagtctcag	cccgggtggca	tatactccgt	tatataaatt	gtacgagaag	atgtctccca	1680
ccttgtagcc	actcataccc	gtttataaaa	gggatgtcgc	agactgctgg	aggaactgta	1740
taagcaggcc	gaagaactat	ccgtggctac	gaaatcattc	ttggagacga	ctgttccggc	1800
gaaccttaca	ctttcaatat	atcgcttacg	aacaggaggg	actgtgccga	cttgtcagtg	1860
ccaagagaac	atgggagccg	gccgtctgcg	caatcgctta	gcagaagaag	ccaaggcgag	1920
cagctcctta	tctctgactc	cgataccctg	ccggcatcac	cgacttcac	gaacgctatc	1980
tgcgacatgc	ctccggcaca	acagtcgtag	tggagggttc	gtctacccgc	ccaaatcgac	2040
caatcccctc	cggcaacgta	tggcgccgaa	gtggaaagtc	gatcggcgga	agagcgagca	2100
cgaaaaccca	ctccggattc	atctcaatgg	ctttcatgat	cccaagaaaa	cagatgttgc	2160
caccggcttc	cctcccaata	tgggtatggg	gtatgaagac	atcctttcgg	cgagcgtctg	2220
cgacaagccg	gcatacccat	cctacatatc	gataccctgt	agaacattac	cactgcgata	2280
ctgccgaggg	atttttggcc	actcgcgtag	ctatctggac	aatctctatt	gtcaccgcga	2340
agaattagcc	gattggtaag	cctgctcaga	gcatacaatt	tgctgaaaacg	gctacacctt	2400
agcgaatggt	agctgctttg	tggccactga	tccgatcctc	attggaaaaag	agctcacggg	2460
agctaagccc	tctctcctcc	tcttcagcct	gtataagctc	tatacgtagc	ctccctctct	2520
ttgggtgtgtg	ctgaaaaaag	ctgatcctag	aaagatcaga	aaaagcaata	attatatcga	2580
aatgtttgac	ctcctctcga	gtgtcaactt	tttttcagta	cacgtcagtt	cgtaaaaaatg	2640
gcggttagcg	tttggaaaaa	cgtggctcgg	gaattttttc	g		2681

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

gtcgtatccg	aacaattggt	cggagccggt	ttcaatgaga	tactcaacat	tcgcttacgg	60
ccggttctta	ttacgaaggt	cttaagagcc	atccgagaag	atggcagtg	agctgatgaa	120
tccgctgagt	caggagctta	actgcatagg	cagactctgc	tattcggagg	attggagacg	180
ctcagccaca	acctcctcgt	aagcatctct	ccctctatct	ctttgaatgg	ggtaaatgct	240
atcgctccat	gccgcaaagc	gcacggacga	gactccccct	gcggcctatg	cagagacgat	300
cgcctcggca	tttgatatg	cggacaacgg	gtgcacaata	gctggcacac	cccgaagaac	360
cgacttcggt	atttgaactg	aaagctgtgg	taaacaggta	ctttgccgcg	tagggatcga	420
aaccggagct	tatacgctga	aacagctgac	aatgatctgt	acgcatctgc	catggaggtc	480
aagactcggt	gggcaaactg	ttgggtacat	tccgaacggt	atcaacggaa	ctgatcaaag	540
cttcgaaatn	gagcaaccgg	ttactttgcc	gaatgctttg	ggatgcccc	tgagcgaatc	600
g						601

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 848 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...848

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

```

ggccgaagcc cagtacaata tggctcgcaa cgggtgccgaa cgcgaagaca gctggcagct      60
tctgccctcg tcgatagagc gagaggagcc gtcgccgagt ggagtcgtac atcaacgaaa      120
cctacctcat cgccccacgg gcaggcgagt gtcggagata ttcccccagg ccggcgaaact      180
cgtaggtacc ggcgcactat catgaatatc gccgagatgg gcgatatgtg ggccagcttt      240
gccgtcgtga ggatttcctc agcagcatga ccatgggagc cgttctggag actgggtgcc      300
ggctctgaat gaagaaaaag tacgcttcaa gatcacattc atcagaacat gggtacctat      360
gctgcctgga aagcgaccaa gacaacaggg catacgacct gaagacctc gaggtaaagg      420
ccacccttgc ggataaagac aggcacaaaa gctacgcccg ggtatgtccg tgatcatacg      480
caagtaacga gagcagtaag gccatgcacg ggacagccct tatagccacc atgcgtagaa      540
ggtgcgacaa ctgacgagtc gcgtcctctt cctcttctgc atggtgatgc tctgtcttt      600
tgctgtctct tcttccctc catcatggat atggggtgcc gcagaacctg cctgcgggta      660
ttgtggatct cgatcgtaca cagacgcgcg caccatagca cgccacctca attcgatgga      720
gcaaacccaa atcgtaaaca gttcgaaggc tgcgtgaggc tcgcttgacg tacagcgagg      780
cgagtatcgt actactatat acccgaggaa tgacacggat gcctacgcac agagcagcca      840
agctctct

```

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 303 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

```

aaaagaaaca aaaagatatg tcccatctgc caatccatag aagttcgac taccgattt      60
tgaggtctat ctgaagacaa ttgtatctaa aacatctgat cttcagacag atatgccttt      120
tctcataccg acgactatta tttcttcgct tcatagaggg ggggcaatgt cgtctgaata      180
ttgatttcaa ggaatgactt ttcgaaaagg atagtctggt tatcattcgt ccgggacagg      240
tacctgcatc attgatgctt acaatctttc ggcaaacttc cttattattg actctattgg      300
taa

```

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...507
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

```

gcaatttggg caaatcacgc atgaaaaacc gttaacagcc attatttcat cagttacgag      60
tgcaagagca aaaattgaca attttcacct gaaaatgttg tctgaagagt gtttcaaaaa      120
attacaaaaa tgtttttcag acgagaccga acagccgaat acgtgaagca ggggattatt      180
tgattacctt tgaacacaga aacttagctt tgacaatata tgattacagc cgaacgttat      240
cacgaattag catgggacac cgcgtagtgg ggcacgatca caagtgcaga catcgcatgg      300
acacaactat cgtatccact ttatttgcag tgcaccggct cttattcgat cgggcgtgta      360
gtcgatttgc gtgttatcaa agagttgcta tgcagtggct tgaagatcat tgggatcaca      420
agatgatgct atgggagcag gtccgttgct tctgtcttg cgtgcgactg tgccggacga      480
tctggttgca taccgttcaa tcccacc

```

(2) INFORMATION FOR SEQ ID NO:855

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9159 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...9159
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

```

ctgatttatg tattcgctca tctatctgtc aaaggtcgaa aagctcctgg ccaactcctc      60
cctatcgatg gatacagcat cgaaggcttc ctgtgcatca gtgcgaccag atcgggatcg      120
ttcacacgct cgccgttcac cacggcgagg aaccgtagt cggcagtggc tgatccgcca      180
catgaggcga tcggaggcga tcgtcagagc gatggctgct gctacggagg ctccctctac      240
actcccagga tacgtcttga gagcaagttg cgggtagcaa gtttccgagt gtagaaagga      300
aacgcccatc cacggcacgc ctgcaactga cataaccgaa gaggggcgca agtgctccca      360
ctgctcgggc agcttggccg tagcaaaata gcacgcaggc gatcctcttc tgctccggag      420
gtaagcccg tgaagtactt actaacaatt ggccgatttc cgcttcgggtc ggaacagctt      480
ttttgttgaa cctattcggt tcatcatcgt ttgagttgga gagccagtgc tgtacgcagg      540
cgcgctcggg gcggtcctaa ttggtataaa cggcttcgac ttccacgcta cgagccgggc      600
gattacctcg ctttcgtagc cttcgatctc tttcagcgga aagtcattcg ctgcaacgga      660
ggcagtgtct cgatagcagc ttccacagac gcattggtct ggattgtctc agtacacctt      720
ggggtgtagg ggcataatcg agaaaggcag atcgtccggt agcgggtcca tccgtccttc      780
tttgggagca tatccaaggc tattcgccga gcagtgggtc cagccactgc ttcattgctgt      840
cgtatccgcc cagccgctct cggttgatcc acagacgcac caagcctctt gcgacacgct      900
ggccgcagct tcctcgctgt cgaggatgct aatgccactc gtttgagtcg aggggccaac      960
ggggtacgct tatgggcgaa gcttctactt ccatgcttaa gtaatcgga caggacctcc      1020
gttgcaaaagt ctttattttac gagacgcaga acaaaccgga atctgtcatc cgatagagaa      1080

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tttttttgcc	cttccccgaa	tctcatcctt	tcagcaccce	atcgacgtcc	gaagcgttac	1140
ctcatccgat	actactatta	ctctcttccg	ataccgactc	aaaccaaaaa	gcattgacac	1200
atcggttat	acagggatcg	gttaccgccc	gaattttggt	gttcgtcgtt	cctcaaaacg	1260
tggcgcgtaa	tttttgcttc	tggtcgggaa	aatgaaaaat	tctcacgccca	caacgaaaca	1320
attctcgcgc	cattttttca	gaaaacacgc	gccgcaatcg	gcgcattttt	ggtcgtgttt	1380
ccatgacagc	aggctataga	cattggcgcg	atcggaatcg	ttcggggcgt	tatggctgca	1440
tgtcttattt	ctttactttt	gtggggagcg	aggcaaacac	tattcgcccc	ccatctccat	1500
tcttccaata	ccttcatttt	tttcagtata	atgaatcgag	cacgaatcat	cgtagccggc	1560
atcggtccgg	aggagcatcg	gatattactc	ctgcagtgtc	atcggtctatc	ggccgggtcg	1620
cgtagtcgtc	ggctataaat	actatttccg	ttttatcgaa	ccttattccg	tccggatacc	1680
cactgcgtgg	ataccggcat	gaagaaggag	cggcacgtgc	cgaggaagca	ttcgggtatg	1740
ccctcagcgg	caagacgggtc	tgcggatcag	ctccggcgat	gccggcatct	acgggtatggc	1800
tcctcttata	tataaatgaa	acgagccaaa	ggcgtggaga	tggacatcga	agtgtctgcc	1860
ggatcagtgc	ttttcagaaa	gcggcttcgc	tgcgtgggtg	tcccatcggg	cgcacctctg	1920
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gcacgtgca	ggaagcaaga	atcagttgac	aatcgctgc			9159

(2) INFORMATION FOR SEQ ID NO:856

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 928 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...928

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

```

aggaaaaccgg cgaccgcaag cctgtgaact atgtgcttcc tccgggcggt tgcgttcact      60
cgatccccac caagcacaga gtactcagca aaacgaacgt ccatgagcct gaaagtcagg      120
acactggcac cggcgcatgc acgggcttat ataagaacac gggctacgac ctgagacgtt      180
ataagcggtt gcagatttta cgcatgccga acgccttcag gatgaagacg gcacgcatac      240
agggatggag atctatccgt cttcatccgc ttggggacgg actaccggaa caatattacg      300
aatactccat accgttgccg ctgactcctt tccgtactta ttcaccaata gcgaaagcga      360
tagagaaacc gtttggccga aagaaaatat gtgcacttca aactgtctgc cttactgat      420
attaagacga aacgcaacag gagaaagcag caggcaatcc tgctgccgac ttctatcgcc      480
ttttctccga cccgaccccg aaaacacagg taatactgtg agcgttatgg gaaatccgaa      540
ctgagtgaag tcaagactat catgatcggt attcgtaata atagtactac atcaaaagcg      600
ccgagatatg ggtcaatgag ctcagactca cggactagat gagaaaggcg gatgggctgc      660
caataccacc atcaatatgc agcttacgat ttgggatcgg tgaatatgcg cggacagatg      720
ataaccgcag gattcgtgct ttggacgagt ctctcacaca gcgagccata gaagatacgc      780
gtacctcaac ttctccacca atttggagct tggcaagttc ttccccgaaa aagtcagatc      840
agcatacctt tctattactc ggtatcggat gagaaagtat ctccaatac aatccctttg      900
atcaggacat tctcctgaaa gatgctct

```

(2) INFORMATION FOR SEQ ID NO:857

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```

tctgcgtgcc ctgacgggat tggagcgcca caagctgcgt gcagagttca agagatcatg      60
gcctccatca atcatttgga agctcttttg gctgataggc attactgatg gagctgggtca      120
aaagcgaact gctggagata aaagagaata tggcgatact cgcaaaagcg agatcatata      180

```

tgcttcggaa gaattcaccc cgaagacttc tatgccgacg atgatatgat catcacccctt	240
tcgcaatggg ctacatcaag cgtacccctc tgagcgaatt cagaacgcag gctctggcgg	300
agtaagagcc aagggatcgg atactcgcga aagaagattt ccgggannta tatctactcg	360
gcctccatgc acgccaccat tatgctgttc ca	392

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

ccccgacttt ttgcattaag ttactaccga caaagtttagc atccagtota gagcaggacg	60
actctgagca ttgcaaaaac cgattgttgc gagcagcaag tagctgccaa aatcattttc	120
ttcatttttc gttctttttt gagttttttc tacaatgtaa cacactctct ctcgttcaaa	180
agtatgcta tacatacttc cgatgcagca aagatacaca atgaaacgta tctatgattc	240
aaatgaagat ttgcacttat cagggtggaat ctgcaaaacg cgaaaaacgg acaaattattg	300
gatgatataa aattattaca tacattttgca ccgcatttca aacaaaaaaa tgctactaag	360
gctgaatcgc tagctcagca ggtagagcac atccttttaa ggatggggtc ctgggttcga	420
accccgaggc attcacgaaa aaaaggggcc atgtcaaaat tcgggttttt tgaagtacgc	480
ctcaaaaagt ggatattaaa ttatccttgt gttatagaaa gagtccggta caataccggc	540
tcttttttgt taatcttgcc ttaattctac tatttctata atnggtattc ctccaatgca	600
ttgataaa	608

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

tcttttcttc ctctgtataa gaagatcttt cactatcaat cacatccata acccacatga	60
agtactgtgt gcactacat ggtgagaaac tttaattaat caaagatgac tgggttttgtt	120
tcacttttat atactttttc tatcgcatgc tcacctgctc cgggatctgc atctcccata	180

agcagaatcc	gatgtcttga	tactcccaaa	taaaggcaat	agaagcgata	ttgttgatcat	240
ccatttcgat	aatgggcggg	atgcatatcg	cttcaatata	tggttcattga	tcgttcacatca	300
tttacgttct	catcttttgt	ctcctcgcc	tcttctagtt	gtgaattctc	atcaaagcct	360
catagatagt	ttcctcccca	tcatagtctt	ctttttttgt	ttgtacagtt	gttgccaaaa	420
tagctttcga	tattttacat	cagtctatct	aacgcaactt	gggaaggaga	aaggaaaata	480
atcctcccca	attgttggca	agttgaatcg	caggagactc	atctgtaata	tattctcttg	540
ccaagccctc	ctccattctt	cttttctcaa	tatacattct	gccagggtag	cgccttttct	600
tcattgacat	tttgacttag	catatcaatc	acaatggcaa	ctgatcatat	aagcctatcc	660
acattcgctt	tcattctgctc	ccgtccctggc	tgctcattgg	taataaccct	ttggtagcag	720
ttatatatga	atatgttcga	ttataanggc	tggtattttga	gttaagcatt	ttttatca	778

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

gatcgtgtac	acagtctcgc	tatgttgggtg	ttcgatgagc	aatacaggaa	aaaagtngcc	60
gaacattttt	cttcctccnt	anggagcggg	acttctacta	tgtctttact	gtgaaattaa	120
aacccggaca	gcgcgatttc	tttttcgggc	aaattttcct	ggatgcaga	ctgccatggc	180
ttcgatcgtg	aacaaaccga	tatgaatcac	tttatgcagg	tcctcagata	tttggaccct	240
attcatatct	caaagcaacc	aatgataatg	gattccccat	gtcgagaatg	tattcaatca	300
gacggttacg	atcgggggaa	ccatcactca	gcctttacca	ttcagccgga	cggagaaaaac	360
aatgtgaagt	tgcagcgtgt	ggttgcaaa	ttgatgtgaa	tatcgtggaa	ggagtggaaa	420
atctgcagaa	gattgaactt	ttaatgctaa	tgtccactat	agattggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggtg	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 313 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...313

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

atgatggcta	cgggcgacga	agctctctat	gctcgactgg	aggcctatag	gagtcgctca	60
aagaaaaagt	cgttaaggcc	aatcgcgagc	tggcagagtg	aagtacaact	tcaaaacgaa	120
ttaaagccct	gtcctgcccc	gttgggtctcg	gcacaaaaaa	gatcggcagt	ctatagccgt	180
ggcttattta	tgagccctat	cggctgtagt	ctgcctttct	ttttctctat	tatcttttcg	240
aagtatgtga	agtcgttccc	gcttcgaatc	ggcaatccaa	agaatatagc	aaggctatgc	300
tcgatctgtc	gga					313

(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

tcgaacagct	gaagcattgt	ccgtacgtct	tcgttttggc	attcgtccta	tcacgtttctt	60
tgaagagttg	ctctgctgcg	gcaaaactctt	cgggcgagtg	gaaccactt	cttttttcat	120
acgctccttg	gcctcttcaa	gtgtcagtga	ccttcgcgat	gagcctcttt	gatgtcgagc	180
atacgctcca	acttactttg	tcgaggctgt	caaaagtttc	atttgttttt	atgacctgca	240
tgtttttgag	caattagtga	tgaataacaa	cctcctcgca	gcttatcaaa	agctattgtg	300
gaggtatata	cacttttcgt	aatataacaa	tctcagaata	tattttgttc	tggtttttca	360
tcgaggaaaa	aagtgcata	gctcattacg	cccaagcagg	atacgagcct	gaaatgctcc	420
gattgtggtc	tgtgttttgt	gaaagcaggc	gogagatttt	tttcgttttg	gtttcacttt	480
ttttcttttc	cacgccaaaa	gcaaaaagtt	cacgtgccac	acttttgggt	gtcataaacc	540
gaaaatttag	gcgtgtgaac	ccaatcggat	agggatgata	catcctatgc	tgaatcggaa	600
gtgaatatgg	tgcaaaaaaa	gagggacagt	gc			632

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1366 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1366

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

ccgggccgat	gctttcagct	cgtcttccga	ttcggaacga	gtagcgcgct	gggtgctggcg	60
atccctccgc	cgcgctccat	gatactcatg	tagctgtccc	ggcgagccgc	cattggaact	120
catcttcctt	gtagccgccg	aagacgaatg	gggtgtggctg	tccacaaagc	ccggcagtac	180
gcagcgctccc	gtggcgccag	ctcccgccag	ccttcgggtca	tggacggggc	tacgtccgcc	240
atgcgccggc	gaaggcgatg	atgccgtcgc	ggataactac	tgcggcaggg	ccttgatggt	300
gtgtatctgc	cccattggctt	cgcggccgtg	tttggcttcg	gagcttgga	ggtgacgaag	360
ctgggcgata	ttcttgatgt	agaggttcat	tgggtggggg	tgtaggcat	gtgtgtcggg	420
aaggaagctt	gccgatagaa	cccaccacgc	cacccggaag	aggggtggcg	gtggtatctc	480
tatccttcaa	caaaaaacat	gctgacgttt	actccatgat	ccgtgattcg	aggatctgac	540
catggagaag	ttttcgatgc	cgaggtagta	ttcggcacag	tcgatcaggc	ctgcatgggt	600
acgagtcgga	tcacttcgct	gcctacgacg	gatacgcgta	tcggggcggt	tccatgcgta	660
ccatctcatg	agcgcgatag	acagcctctt	ggtgaagtcc	gtcagggttca	tggacacctg	720
cacgatgccg	cggtcgtaag	ctctacgccc	atggccttgc	agaagcgag	accgccgccg	780
aggagcgta	cctcttgagg	atggcgctccg	cgatggagag	gtcggttcgta	ttgggttcac	840
gttgtaagcg	acgagcggca	tgcggggcgcc	gactgccacg	gtccggctgt	cgggtgacga	900
tcggccgggc	cgaagtccgg	atgccagtcg	gttcgtgtat	cttctctgcc	atgccttcga	960
actcgccttt	gcggatcttg	ccaggttttc	acgggtgggga	gcggtagccg	atttctcata	1020
gaggaatacg	gcacgccgta	cttctcgcct	atcgtgcggc	ctacctcctt	ggcgaggggt	1080
cggcgtcttc	ggcagtcaca	ttcttgatgg	ggataaagg	gatcacgcca	ctgcgccccat	1140
acgggggtgc	tgaccctgtg	gtttggtcag	gtcgatagct	ctacggctat	gccaacggct	1200
tcgagcactg	cctcccgaa	gggctgggtt	cgccactac	ggtcacgacg	agacggttgt	1260
gatcctcatc	gttgatatag	tcagcagctt	gacgccttcg	cgcgtgcgga	aggggtttac	1320
tatttttcga	ttttctcttt	gtcgcggcct	tccgagaagt	tgggca		1366

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

tcacgaccga	agaatgccaa	aaccaaatta	aaaaccagaa	gaagattata	tcgtagtctc	60
agttaaagaa	ggcgagaaca	tcgaaagagc	actgaaacct	tcaaaagaaa	gtttgaaaaa	120
accggagcag	tacgcgaatt	gcgtgctgtc	aggcttttga	aaagccctcg	gtggccaagc	180
gcaagaagat	gcaaaagcca	tctacgtgaa	gcagcttcag	gttgccgaag	aataaagaag	240
aataatattg	ccgcagtctc	tttgcggtc	aagaggggtg	caatgatcga	gaccatctca	300
ttcacgacaa	tgaatgaaac	acccgacacc	atcgaaagat	tccctattat	ctacgctacg	360
aagttcacgc	gtcagaacga	accgtttgtg	acatgcacaa	gatttgaatc	gctatgccgc	420
tttcttcagt	gaacacacgg	ggaagtattc	gagccaagcg	aacgcgacaa	ggatgtcgcg	480
cgcgcttggc	cttctcttta	atggaagccg	gacaaaaaag	ctcttcggtt	cagcgagat	540
gagcgcggtg	aaaagctttt	acaaatacat	gggtcaaaatc	gggcttatgg	gcaaagtctt	600
gtccgaatgc	tgaggggacc	gaagaaagag	aggccgcacc	tgttttcgtc	ccgaacaatg	660
aatggaaaa	agtgtgaat	aagccctccg	tgaagatgat	ttcgaggccg	tacgggacag	720
actgattctg	gagacctgta	tgaagtgggt	ttgcggcggt	ccgaaatagc	cactctcaaa	780
gacacgcggg	agaagacaag	gccggctgca	tacgtatcat	cggcaaaagg	aataagagcg	840
aatagtacct	ttcggaatac	gtctgcaaga	tatgatagac	aatatcgga	tattcgtgaa	900
gaaaaagtag	ggaaatctga	tttttttttc	gttcttttga	tggcagacca	ctgacagggtg	960
aagtgggtcta	caagatagtt	gtacggcatt	ggcaaacgta	ccgcacctga	ccaagaggag	1020
tccgcatgtc	tgagacacag	cttcgccacc	gaaatgctca	atcacggagc	agatctgaat	1080
cgggtcaaa	acttttaggg	cacgacagcc	tttctacgac	ggtgcaaa	cgcataatttc	1140

gttcgaacaa	cttagacaga	tgtataacgc	tcatccaggg	caaaaaaaga	aacgaccatg	1200
acagatgtaa	gaatccaagc	tctgctttcg	atgctaccga	ccaactgaaa	gattttgtac	1260
agaagaaaat	atccagctga	atcgcttgte	cgatggaata	acgggagccg	aagtcgctct	1320
caactcgta	agcctgagac	cgtacaaaac	aaagaagcat	ctatcagggt	cttatccccg	1380
gcgacgactt	gttcgcgga	aagatagcag	acacctttga	gaagctattg	atctgacagt	1440
cgatgcactg	aaaagacaga	tcgaaaaaag	aaagaacaga	gaaaatagga	caaagacca	1500
aaagattcgt	cgaatgtttg	cgaattagaa	aatgtcacta	aatttgcagc	cgattcgcct	1560
ccccttaacc	gcatgaggct	aaggctgtga	ttttagcggg	aataagtcag	gcaccgggag	1620
cgaggggag	ttaccagagt	ggccaaatgg	ggctgactgt	aactcactgg	cttacgcctt	1680
cgggtggtcg	aatccatcac	tgcccaccc	ctctgcaaaa	cgagggaata	tcggattgcc	1740
aatgtagctc	agcggtagag	cactccttgg	taagggaagag	gtcccgggtt	caagtcccgg	1800
catcggtct	gatgtggtta	gcgttttgta	taagcacaaa	caaacactt	aaataaaa	1860
aaaacttaag	gttatggcaa	aagagcattt	taacagatcg	aaacccacg	taacgttggg	1920
acgatcggac	acgtggacca	cggttaagact	accttgacgg	tgcaatcaca	actgtgttgg	1980
caaagagggg	tctttcagaa	ctccgttcat	tgattcaatt	gataacgctc	ccgaagaaaa	2040
ggaacgtggt	atcacgataa	tacttcacac	ggtgaatacc	aaacagctaa	tcgtcactac	2100
gctcacgaga	ctgtccgggt	cacgcgact	atgtgaagaa	catgggtacc	ggtgctctca	2160
gatggacggt	gctataatcg	ttgtagcagc	tacagacggc	cctatcctca	gactcgcgag	2220
cacatccttt	tggtcgtca	ggtaaacggt	cctctctggt	tgttttcatg	aacaaatgtg	2280
acatggtaga	cgatgaagag	atgtcgagct	tggtgaaatg	gacatgcgag	aactcctttc	2340
tttctacgat	ttgatggtga	caataccctt	atcatccgtg	gttctgctct	gggcgctttg	2400
atggagagcc	tcagtgggaa	gacaaggtga	tggagcttat	ggaagctggt	acaactgggt	2460
tcccctgcc	gagcgcgata	tcgacaaacc	gttcttgatc	cggttgaaga	cgtgttctct	2520
atcacgggtc	gtggtacggt					2540

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1206 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1206

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:865

agaagtcggt	tggttttgcg	atacccttta	aagaangcgt	ctgcaatgtc	agccatcggt	60
attctggatt	ggtatgccat	ggaggatatt	atgctgttta	atactcaaat	atncaaaata	120
cctccctata	tccaatgaat	taccaaaca	aatatacgcc	aatcgccgtg	caaaggtctc	180
aaatggcggg	ttagcggttg	aaaaacgtgg	ctcggaatt	ttttcgtttt	ggcgcgggaa	240
gtaaaatttt	acgcgcacaa	acggaaaaat	tctcgctcgt	gaatctcaga	aaaccgaacc	300
gcattccggc	caattccgga	accaaattcg	tgaggaatct	gctacaacgt	ctgttcgacg	360
tatgcttaag	gcccacgag	gtcaagccct	catgaaagtc	agaaacaact	caatcggtatg	420
atcagtaaga	cgcgctgctt	gtagaacgta	ccttcggtag	tattcgacga	tggttctgtg	480
gcggacgatg	cgctaccgag	ggttagccaa	gacacatacc	cggaatatcc	ttgaagctag	540
gcctacaatc	tcaagcgtat	gccggggcct	cttgtgcttc	aaggcgcaaa	taggcgtaaa	600
acgcgcgcac	ctcgagggca	attgccctcg	aggtgcggaa	aggggactaa	tcccgaagct	660
gcaaaaacaga	cgagaatggg	caaaaaacac	cgggaacaag	cgagcagaaa	gaacagcctc	720
tttgtgcaat	ggtctatctt	gggattgata	gatgaggata	ttccccttat	cgctccttgtg	780
ctcctattat	ttttagttac	aggacaaatg	tagtgctttg	tgccgggcttt	ggtggtctca	840
gaatttgaga	aattcaagag	cagattccaa	tctcaaatgc	aactttttatg	aataaccgga	900
aataatacag	ctcaatccag	atcgggccata	ttatcttcca	ggtagaatcg	ggaaaaatca	960
gataggattc	tgctcctgac	ttcggagtct	ttcccgggcc	tttttcattt	cctcgcggta	1020
ttgtttgcgg	ctttttccat	ctctcggcgg	agctttttcc	gctctcttgcg	ccattcttat	1080
tttgcttttt	ctgagccttc	atatactctt	ggtagtattt	ctcctttgct	tgcgatattt	1140

tcgcatagcc tccgagttgt caggcttcaa aacattcact ccttgcggaataaacgcgaa 1200
 cggccg 1206

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1142 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1142

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

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ttccaatggt cttcgtccc catcatcatt gtcgagatag cattctatct gcgataaacg      60
cccaaacacta tcttgcggtg tgggtcggga ctatgaagga ctttccgata gagactgaat      120
acatgactaa cggttcatac aacgacttaa aatataattga acgctgtttt gaatgtgtaa      180
atgcctcaaa cctgatcgac agaaatgtcg ttcgacaaat gaattacctt tgttgggtag      240
ttatagagaa aaaggcaatg aatccgcccc aaagactgct tgtcattcac cgcgccctgc      300
tccttaccgt atcgaactgc tcaatactct gtcggcagct ttcatacaca tatctacttc      360
gaatttgcac cacctataga acagcgattc gagcaggcga actagccaag cgtgttcact      420
ttcaaagcag tgtacttcct ccgccccaaa aatcccgagg ttgaaaaact ttcgtcccta      480
tgccgcctca tgggtcgcag tcttcgtccc gatgtcgttc tctgtagcga attcaatctc      540
tgacactgac cctcactgct gcctctcgcc tgttcagtcg gaaaaccagc tgtatgtctt      600
atgcgatgac aatgaacaaa tggcagaagc agagctgact acggtcgtgg cctcaaacat      660
cggatgctct cctatgtgga aggcgtattc tatgtgatag ccgtgcctgt gatctctatg      720
cctctcgctt cgtagctgg atagggagcg attcgtttac ctccccatcg tacaggacga      780
aaagtgtctg gccccctcta tgaacaggtc ttcggtatag gccgggacct qcgcatgctc      840
tcattcctgc tgggtgctcg atgatactgt atgtaggacg ctgtcagagg aaaaaaacct      900
gccggcactg atcgataacc ttccactct accgatgatg ttcattctcg tattgtcggc      960
gacggcccga tgcagtcagc ctaatgaatc aagtgcaagc tacaggccat ccggaacgaa    1020
tcatatattga gggaaaaagg aaggagcaga gctttatgcc tactatacgc aggccgatgc    1080
ctcgtattac cgagcatgcg cgaatgtttc gttcggtcgt aaacgaactc tcatagcagg    1140
cg                                     1142

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(2) INFORMATION FOR SEQ ID NO:867

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2567 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

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cgaaaaatatt tacgctcggc attttcaggg acatgaaaca agtttttttcg cgccacttcg      60
catttttcac tgcaccacta tccgcagtc ggcgaaacct cgactactga ttttgtttcg      120
tttatatata atagagagag actacagcgg ggacgatgca ggagtccggt atgcataacct      180
tacagtagtc cgaacggggc ttgccgtaga tcagctatgt acaagccaaa gtcaaaaaaca      240
aaggacataa gaaaaaacta ctcgtaaga tgaaaacaac gaccttttcc gtagaggcat      300
gatgtgtggc ggttgtgtg caagtgtaga gaaagcagct ctcggtgtaca aggcgtacaa      360
acggcatttcg cttctctgga ttcccatagt ctacagtggg ttatgctccg gagacaacct      420
caccggaggc aataatgaag gtgtacgcct cgccggatgc gagtgtgaag tctgacaagc      480
ccaatcctta aacccgatag tcccgtgat atgaaggagc aaaaacgttt ttcccgtagg      540
ggaatgcggt gtgcgggctg tgcgcatagc gtagagcagg ctgcctccag gtagaaggca      600
ttagcgaatg gaacgtccaa ctgcgcgaga atatacttct gtatcggtgg acgaaagggt      660
aacttcggca gaggatctgc gcaaagtatc cgcagcatag gattcgacct gatagtggag      720
gattcggagg cagagaactt cgccggcgcg atgccatgga agcagcagaa ctgagacgga      780
tgaatgcgat acgatcatag cttggtcgtc cgccatcctg ctgatgcttc tgagctaattg      840
ccgcattttcc agatgatgcc ctacctgatg atgctcatag cctgcccggg tacacatggg      900
caggaaggac tttccaccga tcggcactca acaactgcgc cagggcgat tttcaatgga      960
tacgctggta tcgttgagca cactatctcc tttttttata gcctgatagt cctgctgttt      1020
ttccgcgaag gccggccggg atgaagctcc acctctactt cgatgcttcg gccatgatat      1080
cgcatattgt ctactgggca aactcatgga aaagcgtgcc ggccgaacac ggggcaagcc      1140
attcgtgaac tgatgcgact acagccggcg gaggcatggt cgtgcgcaac ggacgcgaga      1200
ccgtgatgcc cattgctgcg ctcgtcagg cgacttcgtt cgcgtacgtc cgggcgagca      1260
gatacccggt gacgtatcgt gaccgaaggc agcagctccg tacaagagag catgatcagt      1320
ggcagccctt accgcgagag aaagaagtcg gctctatggt tttctccggc acatcaacgg      1380
ctccgggtgt ctcaccgtac agtctactca cgtaggcagc gcacggtact cgggcgcatc      1440
atccgcacag tccgcgaggc acaggccagc aagcgcctat ccaacgtctg gctgaccgga      1500
tcgcgggcat attcgtacca tagtcatcgg gctatccatc cttacctata ttatatggca      1560
actgacggag cagccgatgc ttccggtctac ggactcctct gtgccatata ggtgctgtga      1620
ttgcctgccc gtgcgcactc ggtctggcta cgctacggc tctggtgtag ggatcggacg      1680
ctcggcacga aatggatatc tcgtacgcaa tgccgagcac tggagcgttt cgctaccatc      1740
gatgccgtgg tcttggtataa gacagcacgc tcaccatagg caagccggaa gtgaccggta      1800
tcgattggtt tgttcggata ccgatgtacc gaaagtacgc cggctgctct actccgccga      1860
gatcttagca cgcattccact tgcagctgcc atttgccgag cctttgccga aacggcagga      1920
cggaggagct tgcgggaagtc cagaatttcc ccggtcgtgg atcgaatttt ccttcgaagg      1980
agagatctac agagtgggca accagacctt gtcgaggagc ttggcgcaca gataccgacg      2040
gatataaccg ctctgtcgag gatgcagcca tcctctatct ctcacgtgcc gaaagattat      2100
tgggacgttc tgtgtgaccg acgaactgca acctcaggca gcagagggtc tcgcacgctc      2160
catcgacatg gcattcgcac cattatgctg acgggcgacc gcccacaaaca gcggaagcat      2220
tggtctcgaa gctgggtttg caggattatc gtggggcatg atgccctcgg acaaggccga      2280
ctatatacga atactcaagg acagggacac cacgtagcga tgggtgggca cggcataaac      2340
gactccgagg catcagtagc gcggacgtca gcgtagccat ggggtgatggc agccatatag      2400
catagaagtg gcaggaatca cgctgatgcg ctccgatctg cgctgctgc tgctgctttc      2460
gagctgtcgc gcgccacaag acgtacagtc aaagagaatt cttttgggct atgtgctaca      2520
atctgattgc catcccgaata gccgcgggct gctcttcccc gtgaacg      2567

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(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

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gcgcgatgct attttcagtc gtcagcggtta ttgggggggaa cctttcccct ctactacaag      60
gagggtatgc ctcacgcgct ggatgaagat cgactgccct ccgattgccg gaggtagata      120
aattcctccc cacagaaagc ggtgaacgcc ccttggaaga gctaccggct ggcatacagc      180
cgaaggttat ccatacaatt gagcacaatg cccggatttg ccggtagcag tgcttactat      240
ctgcgtatat ggatccacaa aacgatactg cactcgtcag ctcgatcggc gaataatatt      300
ggcgtcacgt cgatctatac atcggtggtg cggagcacgc cacggacacc tgatttatag      360
ccgcttttgg aacaaatttc tcttcgacct tgtatcgtat gcgaagccga acctttccgc      420
aagctggtga atcagggaat gtccaaggac gtttcaactt cgtctatcga atcaagaatn      480
ccaatacatt gtcagctatg gactgctcga gcaatatgag gtgactccac ttcattgtagt      540
gtcaatatc                                     549

```

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1115 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1115

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

```

ggcaacggag gattttcaca atacattgag agcaacctct tcgataagct tcgggaggtc      60
aaagaaacac ctgctccgtt tacgctgctg tacgatctct gcatccgtac gggttcaaca      120
gggatcagat acgggaggtg gccacgtttt ggacaatcct cccggagctt cttttttctc      180
ttcttcgcat cgtctctacg tgagagggat cggcttacag tacttccctt atcgccaaag      240
atggagtgcc ggaactgttc ggccttaaaa tcggagattc tttcctcgat ctgcggatgg      300
aaagcaactg agttggcagc gcggtactcc tgccgatttg gactggaggg tctgcggctt      360
ccgaatacca agctattgtt gcctttggca ttgtagaatc ttacaggag gagcttgggg      420
ttcgccgtcc gcaacgaggg gtcataattca tccttacggg atgaaaggct gcaagacggt      480
gagccgtttc ttatcgatcg tcacgtgccg cgaagccgga gggaagaggc ttggctcctt      540
gccaagggaac agaagtggta tggatcatgg gctatgcggc tgatcggcat tcgccatcga      600
tgagctgtcg gatacgggaag aatatctgct cttctcttcg ggctatagag cttgctcgat      660
ggctttttct cttgcccggg agccttctcc ttccgatcca tcaggataaa ataagcacgg      720
taaaggcgga gtaggtatag gaatactgtc cattgagacg ttcatacaag gatttgagtt      780
cgaaatgcga gcgggatttg tgaaataggg gtgtaatcgc gaaacgatac ctgatctata      840
taggcacgag gagccaatcg tcctttctct atcaaaaagg caggtgcctt tcgatggtag      900
tcggactgag tttccgctcg gtagegacct ctctatgctc atacctgccg gtagcaattc      960
gagcgttggtc tcgtgggtag ctttttcttt tccttggtct ttttctcttt actcttctga      1020
ttgccggcgc tgttggcagg gcttcgtcct tgggtgaaat gctgcgtacc cattcggcat      1080
cagctcttcc gtccgaagtt cctgtctgct gaggc ..                               1115

```

(2) INFORMATION FOR SEQ ID NO:870

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...643
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

```

aggtttcctt gtaattggct tgccacatca agagcagaag acatcttggt ccggaagcat      60
tctccttggg tgtacgcatg aagcgttcgg tgtaaaccac tcgtagaac gccagtctgc      120
cacaggagca acggctatcc ccgctttaat gtaccatttc cccgacacaa actcattagt      180
gtggtatagc cgccatgctc ccccccata tgccgatacg agctgcatcc acatagggca      240
gctgtctata gcagtggccg ctgctatctg atcatcgctt tcgaatacac cgagtgcagt      300
taggtacact tgcgccattc ttcgccgcga gcaccgggtgc ccccccatcc acacatgccca      360
cgacgtaacc tttcgatgca aggtagtgtt ccaatcgaat gaatagcgat ccaataacctg      420
ctgggagttg ggaccgctat atgtaccatc aggacaggat agtggcgaga gggatcgaaa      480
tcaataggct caccatccag gcattcagtt caagaccgga ttgagttttg atagtggtaa      540
ctccttcggg ttgtaacgat aggctttcag ccgttcacgg agagcaactt atcctccagt      600
gtacgcagct ctttggcacc tttgcttctg aataccgaac cac                      643

```

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 637 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...637
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

```

ggttgccgag cagaatttgg gacagtttgc actctatctg cgaggcgaat tcccggattc      60
caccgctgc agttcaaccg tgtgaccggc cagccgctgt tatgagttag atggtagaag      120
tattcacgca aatgatggag gagaaatatt atgtcagaaa cgactaagtg ccccatgtac      180
gaggcaaaag actatagagc gatcagtatg tgcgttgggtg tccgggttgc ggcgaccacg      240
ctgtgtagta accctccaga aggcaatggc cgaaataggg atccctcccc atcaacggcg      300
gtaatgtccg gtatcggatg ttcttcccgt ttgccatact atagaacacc tatggcttcc      360
acaccattca cggtcgtggt gcagccatcg cgccggcgtg aagacagcca atccggagct      420
ttccgtatgg ctgcgcatcc ggatggtgac agcttggcta tcggcggcaa ccacttcatt      480
catgccgtgc caggaatatc gatatcaatg cagttctctt caataaccgt atctatgggt      540
gaccaaaggc caatactctc ctacctcagc tcgcggattc gtatccaaag ttctccctac      600
ggtacggtag aagatccgtt tatccccgca gaactgg                      637

```

(2) INFORMATION FOR SEQ ID NO:872

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1042 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1042

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

atcggtcaatg	gccgggtgaa	atggccgatg	ccgactatgg	ctacgtaggc	cgggtccggg	60
acgaatcgat	ctgtataacc	agaagatatg	tggtcgtctg	gtattcctca	ggagcaggcc	120
gtacaacagc	ttatcgaact	catcaaaaaa	acggagactg	gaaagagcgt	tagtttttcg	180
gaaggactat	ttttctagtt	gatcactttc	ctctcagaga	cccaagcaat	gaaaatcaaa	240
attataatcg	ctcgcatcat	cccttgccga	catatgcgac	ttcggcatct	gccgtatgga	300
tctgcgtgca	tccatcgaag	agcctatcac	gttggttgcca	ctcaacgtcg	tctcattcca	360
acaggcctct	tcacgaact	cccggtaggc	tagaagcaca	gatccgcccc	cgaagcggac	420
tggctctccg	acacgggtatt	agctggtcaa	tagcccaggg	actatcgatg	ccgattatcg	480
cggtgagata	ggattattat	gatcaatctc	tcgaatactc	cttttaccat	agcagatggg	540
aacggatttg	ccagcttggt	atcgccagac	atgaacaggc	cgaatggggc	ttacagacga	600
attggccgat	acggaacgag	gtgcaggcgg	atttggtata	cgggcaaaga	ataattttca	660
atctcccttc	aactaccaca	gatgcgatcc	attctatcat	tctcctgctg	tttcttttag	720
ttattttctc	tgtagcggaa	gtatatccat	tacagacagt	acagcatcta	agttcgaccg	780
atattctatg	aagggtgtccg	gcagcgagaa	caggagaatt	atgctgcagc	tttgacatct	840
ttcgctattg	ccatcggttg	aatcccaacg	atgctggctc	ggatcggagt	tgggaaaact	900
ggatatttgc	cattgggcgt	caggaggaag	gaccccggtg	tttggaaaca	agcctatcgg	960
ctctatccga	ccaccaagga	ctatggcaat	atattaaggt	gctgggtatg	aacgccaggg	1020
acgagctgag	atgctgcagg	ct				1042

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 304 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

tcgttcgttc	aagggtcttc	ccaaaaataa	acagttgatc	aagtatctgg	cgaaccgggc	60
atcaagagct	ccatgctgaa	gaccgaagaa	gcatacatgc	tgaaaacatg	aggaatatgc	120
atttggtcac	agacgaattg	tatttcacat	agatgaaaag	cgtaatagcg	tanagcttac	180
cgagaaaggt	atcgacttct	gacgtcccgt	acagatgacc	cgaaattctt	cgtcttgctt	240
gatatgcagc	tgagttatcc	gctttggaca	atatggaatc	cgatgcataa	aaacttgcca	300
agcc						304

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1024 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

gacaaggaca	cgaagcgctt	ctggttggtt	ccaagagggc	cgaagccaat	cgggacttgt	60
gcaagcaatt	ctattataag	acgacggcat	cgttcctacg	tgcactggta	tggggacggt	120
tcgactaccc	gacgagggaac	cattaccgca	atataggacg	cgacctgaaa	gaccgcctgc	180
aaatggcggt	attccccccg	atggagatat	tggcaaaccg	gccgtaacgc	attatcaggt	240
cttgagaaac	tggcatacgt	cagctggata	gaatgccgtc	tggagacagg	gcgtcccatc	300
agatcagggc	acacatgaag	cacataggcc	atacgttggt	tgcgacgagc	gttatggcgg	360
cgatcaaadc	ctgagaggaa	acaatacggc	cattaccggc	gattcgtgca	gaactgtttg	420
gctatctgtc	cacgacaggc	ttgcatgcc	agacattagg	ctttcgccat	cctgtcacgg	480
gagtgagat	cagttcgact	ccgatatacc	tgccgatctt	accactttgc	ttgagcgttg	540
cgtacgttta	tcgcctgcat	atctgcagga	caggactata	tctgaaccat	tcggctgac	600
ctcatataaa	tagtacaata	ctttccccta	catattaata	aacagaacga	tgaaaaaacc	660
aattgtggct	gtcattgcag	gcggttttcg	ggcgaacatt	cggtttcgct	caaaagtgtc	720
gccggcattc	tgtccggctg	ggaagcgagc	ctttctccac	ctttcttggt	ctgatcgaac	780
gtgacgctgg	tcggttaagag	tatcggagca	gagagaggtt	ccactggata	agacgatttc	840
agctttgatc	tcgatggcga	acgaatacgg	tttgactatg	ctatatcacc	atacatggaa	900
ctccgggaga	gaacggctcg	cttcaggggt	actcgacatg	atcggcatcc	catacaatac	960
gggtgacncc	ctcgtcgaat	cctgactttc	aacaaatatg	tgtgcaatcg	ttttctctcc	1020
ggct						1024

(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1090 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1090

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

agctccgatac	cgatttagtgt	cagaagccat	acaccgcctg	ctttccatca	agccataacg	60
gaagtgaatt	atgcacacga	tcccaaggcc	gaatttttag	tccagcgata	gatcccgaga	120
aaataacggt	gggcttcatt	ctcgatctat	agatcggtat	gggagcgaac	acttcaagggt	180
agacaataag	gtccgatcgc	tcccgaatgg	caagcgatag	aggattcccc	tcagagccctg	240
cacatccccc	tgcggacacg	ctactaaaga	at ttgttaga	gcttattctc	tgagactcag	300
agtattctga	ttactcagag	tactcggatt	gctcggactc	gaaagagctg	agatccggcc	360
gtagtcggct	tgtatttggt	gacgaagagc	ttcaaactat	cgaacttcat	atcctctctg	420
ataaaggata	caaactccac	tgtatctgag	atccgtagat	agttttatca	aattcgaaga	480
gattgacttc	atcgttcgct	ggtcaccggt	gttcaacgtc	ggcctgcgac	ctatatacac	540
atgccattgt	atcgttcgcc	acttacaatg	gctctgacgg	catagaccca	tcgcagggga	600
tcaacttggt	actgtcgctt	acagtcagat	tggccgtggg	aatcccaatt	cgcgcccaat	660
cctaaaacca	tgtctccact	ttcccgcgat	atatagtcac	accccaatag	ctgattggcc	720
aaagcaagat	tattgctatc	agggcttgcc	gtacggcact	ggagctggcc	ggcactccac	780
cgattcagcc	tgcgaagctt	tctttaccgt	tatacccaat	ggagtagcta	tcttttgtat	840
tcttccaaac	cggatatgcg	tccatgtccg	aatcgggtgat	caagccaatg	agcaaggctt	900
ttacatggag	tcgtttgtgc	aggatggttg	tatgaaagtg	tcggccgtca	ttgctactaa	960
ttcgggtgta	aaaggcagca	cactgtatag	tctactcctt	ccgcttcaag	tctgaggagt	1020
ttttcgctt	tgtagtcagc	ttctggtagg	gtgttcccg	gcgaaccact	gatatggggg	1080
gacgtcgaag						1090

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

ncngttgcat	gcatttcgac	tcttttaggat	cccnggcccc	tctgcaaaaa	ctggcgcgcc	60
ggtagagcag	caggcggcaa	tatcatcccc	tcttccacgg	tgcagccaaa	gcagtaggca	120
aggatgatccc	cgaactgaac	ggcaaacgac	gggtatgtca	ttccgtgtgc	cgacactgga	180
cgtatcggtg	gtagactgac	atgccagttg	gcgaaaaccg	ctaaatacga	agatatttgt	240
gctgcatgaa	gaaagcttcg	gaaggcgaac	tcaaaggcat	tttgggctac	acggcgaaga	300
agtggtttcc	tccgacttca	tcggcgaaac	ccgtacttcc	gtatcgatgc	caaggccggt	360
atcgcaactta	cggatacttt	tgtgaagatc	gttcatggta	cgacaacgaa	atcggatact	420
ccaacaaaagt	actcgatctc	acgcctacat	ggctaaggta	aacgcataag	acttctacga	480
gatccgatcg	atctttcatt	actccctcac	ggggctgtac	cgaaggaaact	atccgggtaa	540
gccccgtggt	cttttccgga	tattatcgac	taaccaattc	ccctccaaat	catcagatag	600
ccgcacgtca	gctctcttcg	gactgtctat	ttcgagctcc	tgactgcgat	attcgccccg	660
actcataaccg	gtgtgctgct	tgaaatcttg	ccgaaaaacg	actgggtgga	gaagttcagc	720
tcatagccga	tctccggacc	gtcttatccg	tatagcgag	caaggacttg	gcctgctgga	780
tgataagctg	ttgatgactt	tggaggcaga	ctgtcccatg	acgggtcttta	tcgcagtgcc	840
aaatgtttg	agctgaggca	cagcctgtct	gcatagaact	tgccgtatgc	tgctctttgt	900
gatgctcgga	gacgaggagc	agaaagtgcg	gcaaatagtc	tccgacctgg	tgtgcttgca	960
gtccttctcg	acctcgctcg	aatcatatcg	tcnagaaaga	gaaagagaga	gctgatcnga	1020
tagatgacat	ttcttctctga	tgacgcccc	cgttttgcag	ggcgttgccg	atgagatcaa	1080
cgttgccgctc	agaaaatctt	tctccatgcg	ttccggacgg	aacggttggt	gctgtg	1136

(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3945 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3945

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

ccgacaccca	gtagtaagaa	ttgacgttgg	tcatgtcgaa	cagattgaag	aggtcagccc	60
ctatgtaggc	cccttttact	cccattagcc	atttgcttgg	ccggcaaagg	agtcacccgg	120
gtcagagccat	ttgtacatta	ccccagctgc	acacgcttat	aggccggtgc	ggtaaaggcc	180
ggcgagctaa	gcccttgctc	ggattgagct	ggggcaatcc	tccgcttagt	gcagcccgca	240
gggtgctgtg	atgcgtttat	tgccccgcac	gtactcctga	aggaagaagg	agaattgtaa	300
gtgggtgcgt	tcatcagtgg	taaagaaccg	tagccatcca	gttctgacgg	gcttttataa	360
tggaaagccgt	cagccacgaa	tccactccgg	gtccagttcg	ccgaagagct	tgagatcgat	420
acccgcagca	taacccgaac	catgttttct	cccagatagc	ggatcttcac	gttctctatt	480
atatacgggt	gatgttgaac	aggctcttgt	agtaagcctc	tgccgtaaac	ttgtattttg	540
ccccccatt	tcgaaggtat	agtctgtctc	tgcgagaatg	tgaaaagccc	ctgagagcgg	600
atcttctcgt	tgaggacaac	cacgtttatt	ccttcggatc	cttatgcgtc	tgcccttagct	660
ctttgtaaaa	cggtgcctga	taataagtcc	ggcggttgca	cgcagtacca	aagccggggt	720
gctttcggga	gaatacccac	gctgatacgt	gggctgacga	gcaactcctt	gttgaagctc	780
cacccgaagc	tctgataccc	ggaatgagag	aaaatgtacc	tcctcccatg	ctgagttgaa	840
tcgatcctgt	acgaatgccg	acaagcgcgt	tccctcctac	tggtatcggc	atataggtta	900
ttgtacatca	gcaatcgggt	ctccgagtga	gtaggttgta	tcctaccgaa	tcctccggtt	960
cccattcgcgt	gatatggctg	ctattttctc	catctgtgcc	gatacgccgg	cttgacggcg	1020
atgcttctct	tcagcttcat	ctccctctct	taacccatgt	tcagcacgcg	gtagctcaca	1080
ccctgcgcgc	atgctcgtga	ttgcgcccga	tgcccaagcc	gttggagtct	ctgagcccga	1140
agccatcgaa	gcagtccgtt	ccgccccag	ctgcactcgt	tcagaaagta	ttctccctga	1200
atatcgtagg	tctcccggtt	gttacgttga	aggccgaag	cgtaaccgta	tgccgctggt	1260
tgctgcctgg	cacgagttca	tgctgaaggc	accgaagtag	gtcaggaaac	gatcttggtc	1320
ctgccgtcga	aaaagatctt	caactttttg	gcacgtctca	gtgtaccgaa	gccgtctcac	1380
gggtctgagg	gacaaacttg	tagcgagttt	gcgaaatatt	gcgaggaaac	taaccgacag	1440
cttggggctg	aaacggtacg	tcatgaatgt	tgtccgtccg	catagatcgg	atcgtattcg	1500
gctttcgtgt	ccgtagtgcc	aagagcgatt	tggcactcct	gtagcgtaca	cccgtgattt	1560
ggctgaagct	ccggcactgc	tgccatagta	ggcactcgat	tgtagcatcc	cgaggagacc	1620
gctccttccct	tctcctcgcg	ttgctttag	cgaatatcca	gtacggggac	atcttgctgc	1680
catagtccgg	cgtgaaccct	ccggcggaga	actgtcggat	tgtgtcagat	ccggattgac	1740
gaagctcaga	ccttctctgt	gtgcgagcga	accagcagcg	ggcgataaac	ctccactccg	1800
tttacataga	ccaattctca	tcgtagcttc	ctccgcgaac	cgagtattgc	gagcttagtt	1860
catgttctgc	gttactcctg	cgtagggtact	gatgagcgat	tcacccctc	cgtaggccct	1920
gcattgacac	gaaggtctcg	ggtattgacg	cgctccatcg	gttgagtctg	cgttttgtgg	1980
cctgtaccgt	cacgctcgaa	agctccatcc	ggcctctgcc	aaacgaacat	tcagccgagt	2040
gtccttggtc	agagacggaa	gctgcgactt	accccttggt	accccatgga	gctgaactcg	2100
atcgtgagct	gtccgtcgtg	gccttcatcc	gaaactcgta	gtatcctttc	agattctcga	2160
tgcgctgtgc	cccgtaccac	gcactttgac	tccgycgaac	gggatggctt	ttccccacgg	2220
tcgagcacat	agccccgatac	cctgacgcct	tgtgcatagc	tgccctgagag	catagcaggc	2280
agcatagcag	aattgaatgac	aattgtatat	accgttgagc	tttatatact	tggtcttctg	2340
ggnaatagct	ctttcatgat	ctattaacgg	tatttgaggg	agaaaatcgt	ttgtcccttt	2400
cctccttttc	ccggcttaat	gagccaaaat	ccaatggaac	aaaagtaata	ctaaagagat	2460
tcgaaaacaa	ccatccctaa	aaaacatcag	tcgtatgtgc	atgatgctac	aagaaaaagg	2520
cttgataaaag	aagtttttgg	atcagataag	aagccgtcga	aagcaatgtg	tgtccatacc	2580
gacgattttcg	ccaagcatgt	tcaggtgcag	gattctctgc	aaatacgaga	atggcaaaag	2640
catcagccaa	aggcaaatag	aaaaatctct	gtgtgtgggg	gggatgtgaa	gaaagagaag	2700
acgaatcgac	tttgggggaat	tacaagacct	gtaatttttag	atgcccttta	tcgctttcga	2760
agttgagcgg	aagacgggac	tcgaacccgc	gacctaacct	tggaagggtt	atgctctacc	2820
aactgagcta	cttccgcagt	cttcccgaaa	tggaaacttcg	gtagaaaaag	aaaacgaaac	2880

catgtacccg	ggcgggactt	gaaccgcac	agccgataat	ggccaaagga	ttttaagtcc	2940
tcgtgtctac	cattccacca	tccgggccct	tgatttcaat	aagagcggag	acgggggtca	3000
aaccgcgac	cctcagcttg	gaaggctgat	gctctatcac	tgagctactt	ccgcgacctt	3060
aacgcttggt	tttacaaaag	tgaagagggg	cagtgatgga	ttcgaaccac	cgaaggcgta	3120
agccagctga	gttacatcag	ccccatttgg	ccactctggt	aactgccccat	tgttcttttg	3180
cgattcaaaag	gtagaaacaa	aatccaatta	tacaacagtt	cgctcggcaa	tttttctgcc	3240
atctctttac	gaaccggaaa	aacatcatcc	atggggccaa	aagtgtgggt	cgagaatttt	3300
ttcatttttg	ttcggaagt	aaaaaattct	cggccaaaac	gagaaaaaac	tcgttcgact	3360
ttttccaatt	ttacgagccg	catcggagag	actcgggtgc	gtaaaattttc	aaccgatggt	3420
ttgtatcgat	gaacaaaatc	agaatcattt	gcccattctt	cggtctgatg	ggattatgct	3480
ggagagagga	caatcgttag	ctttgcagtc	caatcgaaac	agaccttaat	gatacgcac	3540
atacaaccga	tcttgcgaaag	cgagcgaaag	cgcaaattggg	acgcgaatac	ttcattcttc	3600
accgcaagtt	gtcggactgc	ttttctcgat	caaatgggct	ttaccagcga	aggagacaa	3660
ttctcatggc	tgttctatcc	ggtcatggag	catcgggtgc	tcattatgcg	ccggtgaag	3720
gatgggatat	gtacatgcaa	gagaacaaac	gaaccaatct	gcgactggcc	atcccaagct	3780
gcacgggatg	atcatacgtc	ccggagagac	cttctccgtc	tgctcatgt	cggtcgccg	3840
actgctcgca	aggggtacct	cgaaggtttg	gattgagtca	ggggaagatc	ggcaaaggag	3900
tggaaggcg	gtctctgcc	cttggaacc	tgctcttttg	gatgt		3945

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gtttgcagtg	ttaaagtaga	acctacagat	aggttttctg	ttgttgtcac	taaaaggacg	60
ctaaagtaag	actgagtgtc	tcttgaggca	atacggtcac	attgatatat	ttccggagaa	120
ttcctttttac	aatcatatat	gcttccactc	tgcttcgggtc	gttacaacaa	gaggttcatt	180
agaatcatct	tgctctgtga	ttgctctctc	ctcgcagcga	cttctttact	tttatccatt	240
accgnttaaa	tcgagcagta	atcaaatacat	taataacaga	tttgaaagac	ttcttgtaag	300
atccttgaat	tgttcaaaaa	tctttgctgt	aataattccg	tcaaaacttg	gtttgcgagc	360
attcttacca	actgntcaga	gggctcatte	atttctgcaa	gtatcaaaat	ctttcaacte	420
tttcatatac	cttaaggtca	cagccagtac	cttagaatct	tatcaacca		469

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

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actggcgacg cagaaattcc acggagtcgt ccgtgnagcc attatcgggt acgataagac      60
gagccgattg tcgcggtgta tgtgctataa gagagggaga actctccag catcttacgt      120
ccgttccagt tgagaatgat gactgcattg tcatagtgtg cgggtattat gcaatcgggg      180
acgtttccag cggcggggct ccaaagccat tgcgacggat cgcgacggat ggtggtctcc      240
atcagcggac atattcttcc gtaatgcttc cttcggggct gtcacctga ggatgtgcaa      300
gagcttgatg gtaccggtga agacatcgtg ccccgttttc tcccatccat gtagactacc      360
ggcagagaga acttacggcc gagcttctcc gtccattgaa gaaagccgtt tctctgccga      420
agaaggtagt ccagtatgag cggcataggc cggactttgg tcggcgatga agatgactag      480
tgaggtctct tcggaatagg attgcgaacg agtcggagca gttcacgtgg cacgtcgtgt      540
tggctatacc acgcgaaccg aatcgctccc gtatgcgatg catgagccgt cggagaaggt      600
acttttcaac gggcgaaaga tctgatagat ctgtaggcca aatctttgat gatggcctga      660
ctgccggaaa agtactccca gttgccaaat gccccatcat caggagaatg gcagggtgcc      720
cttcggctcg taagcgatca ggacatcgag attttcgaat gagatgtggc ggcggagttg      780
cgccgtgaat aagtcagaag cttgaaggaa ctcaagattt gatacgtgaa atttagtaaa      840
atcgacgttc gatccggcgt atttcttgta aagatttctc gggaaaacagc gagtcagatt      900
gtcacgtacc acctttctcc gatagcgaac gcggtatgca gcagccctgc caggatacga      960
ctctgcaacc gcaccatcca agcggtagca ctgcctgcat atacgtcagg cctaacagca     1020
aataatagga agggaaagtg tcgctttcat gggaatatgg tatcggtctg ctgcacattt     1080
ctccgcttgg atcgggtttg cccaatacga tctcttccac tttaccaccc gagtctgcgg     1140
catagggagc cgctcgcgga tgtagtctnc gtaaaacctg catcagacc     1189

```

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

```

cgcaaaagaa attctcgga cagtaggtgg ctgccccgat attcttttgt tccaaaattt      60
tcctgttatg cgttccataa aacgtggctc gagaaaattt cgttttggtt cgggaagaaa     120
ataattctcg cgccaaagcg aaaaaagtc gcgcgtgttt tccgaaaaac gtggccccga     180
attttcgatg attccgttcg taaaagagga agtgtcaaaa ttccagtttag agtaaaggat     240
actatatttg tataggaaaa ccgctaccaa atggacaaaa tcatctact tgatgcgggt     300
tttcctttat gattaagggt gcatttggtt ctttttgata gttgaaaatc cttttttcgg     360
attttgacac agcccccttg tatatccgag gacgaagaaa cccgtactct ttagttggtc     420
ttcatcaggc gttccagacy ggcagttgat agtcgtagaa cgagcggtcg gcagcgttgc     480
ccgtggcctt cgattgcgat agatggtctg cacgcgcttg agttgttgca gtaggagggg     540
caatcacttc attcggggcc tgcttgagga aggccgtaag acggaagagg aatcggctcc     600
gtcc                                     604

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(2) INFORMATION FOR SEQ ID NO:881

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1341 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1341
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

```

ccgatttttt caaatctccc gagactgaat attttcttac atttgtcgcc gatgaagctc      60
tctgtcggaa gttggatgtc gctgccaaaga gagccgatgc ttgaatagaa ctacatggat      120
aatagactat aacagaacat gtgcaccaac acattttatac ccccgatctt tccggccgat      180
cctttcgcgc ccataactac cacgccatct cgatatttgg acaaacagca tatatcccta      240
tgacgataag taggaataac tcctcttata ctctctcaaa ggcataaggc accccacggt      300
tcggccacga atcgtgcggg tgccctctttt atttcagctt ccgaagggcc tttttcggtc      360
ttcgatttat atacaaatga gtttcgatct attataaatt gaaaatgatt tatatacaaa      420
tcgaaaacga tctatatatt ttcgtaaaaca gtttgtatat agatcgttat cttgtctccc      480
ataaaccata tttgacctga aaaagttcgt ttcttcatat tttcgacatc aaaatccgtc      540
cctttcaggt gcttattttag aatcattcca aattccgctt cgttgttgaa actaaaaaat      600
tttcaaacgc gatcgctctg acaggctgcc ccggggcgac gcattaaatc ggttttgcgg      660
cttcattcga gcgagtttct tctctgatac gagggattga ggacttcata ttggccttta      720
agggggaaac gatatttgcc ggcggtaact gacgtgtact aaatggtcgt ctgacacaca      780
taaataaatg aacaaaagtg cctgcttatt gtgcaaaggt cccattaatt cgtcttgttt      840
gataattgga tgtagcaatc atgagcttta gatgtacgtt agggctgaaa tgcgattgcc      900
ctgtggaata tgcattctgc tatatctgaa agtggttatt ttttatcttt gtgcggactt      960
tgttcagagc tgcctttttc tattgggatc ggtgggtgat attaaaaggg aatcgggtga     1020
aaatcccgac agtcccgctg ctgtgaacct tgttaagctt tcggcattta tatccacttc     1080
cgttctgtgc ggatgggaag gagtcgysaa gtatgggggtg aagccagaga cctgcaaagt     1140
ctttgtctgc ggcttcgagg aaaagccggg agagaagcac ttgtgggtcaa tccgacttta     1200
ctgccacaag gatccgnttc tttcctttca atcccccgag gaaaattttg tttccgacgc     1260
agcggaaacg atccattctt ttgctaggaa ttggagtgtg tttgngagcg gacccttatg     1320
gtctgtcttg gcgggatgag c

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(2) INFORMATION FOR SEQ ID NO:882

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 619 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...619
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

cttgtaatgt	tactgttgcc	ataactgata	atgctgttag	aaatatttta	gactcattgt	60
aataatatct	ttattcctaa	aacaaggagt	tcgtcttatg	ttcatcgta	acgaatcatg	120
ctcaacccgt	cgcgcatcgg	aactatcagt	tctccacacg	ttcatccagc	aagaccattt	180
cgttgaagcg	aaggatccct	gtgtctggct	atcggtcggg	agaggctcgg	ccaccacttt	240
accgtccaaa	gcgtattatc	ggccaggatg	agtgtccggg	gaggcagggtg	gtcttgatca	300
tttcatagta	aagggtgtat	tgtctcttgt	ctgcatccat	ataatcagat	cgaagcgttc	360
gttcttgacc	aagtccggta	gtagatccaa	ggctcccaat	atgtaatctg	atcttaccct	420
caaaatccga	tgcctccaga	tgcggcggat	gaagtccctc	atctcgctcg	cgcgctccag	480
tgtgtggagc	gtccgtccgg	agtcaatccc	ctctgccaa	cagagagagg	catanccgga	540
taggtgccga	tctccaagat	cgggcgtggc	ctcatcagat	gagagatctc	gacaaaaaac	600
gtccctgcag	gtgtcccg					619

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

gagctcgcca	aaaatttgta	gaacctat	cttcatcaag	gtactctatg	gatttatcaa	60
ccaattcgct	ttgaacatct	ctctcaagcg	atccgcatac	ggctcgcttc	tgtggagaat	120
actgtctgat	tagcatatac	tttgtttgca	attgaactaa	attagctgca	gaatacatcc	180
ctttttccaa	tagttctctg	tttgatttaa	tgcatacttt	ggctctaatt	tttgtgatgg	240
gccgaatttt	gataataagg	ggctggaaat	aaatttccct	cgcgcatagg	cctgttatat	300
ataagtctcc	aatctttctc	gaaaaccgac	acaaacgacc	gcactttggg	tcaatcgatc	360
aataggacaa	agatcagaaa	tcatttatat	tgactgatat	tcacactcat	ttctccaatc	420
tgtgtcaata	tggcaacccc	attgctcgat	cattatccca	agcgcttctc	cctaatactaa	480
gaagcaattg	gcttcttttt	caatttttat	tgttcagtat	acctactatg	ataaaagtata	540
cttcttcttc	atgaccgttc	tccaaaaaac	attgatagta	tgcttggtgc	tatcgacagt	600
atttgcgaaa	ataatcgcac	tacctctatc	aaggcatatg	gt		642

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

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agcaggcggtt gcatgagccg cacacttgga tattgatcat ctgcgcgcgac gctccttacg      60
atccttgtcc  tccggcatga aggggttgcg atccacacgc gcggtcatcg gaagagactc      120
ctgccggcta  cgtagtttga agggcagtga ttgaactttt cgtcatgggt gtggaaggta      180
acggcagcct  tgaagcgcta ttgataagcc gctccgtctg aatacgcgaa acgtctatat      240
cgctgtgata  atccttttct catagcggaa tcgctccatc tcctccacga tctcccggcc      300
tcggcaataa  aggctttgcc ggtgaagacg atatccgtgg agcttcgccg tatccgctgc      360
tggcatatac  ataagcacag ataccctgtg aaaaaggccg ctgataagcg atctcaagta      420
agaatgtttg  cctgcatttt cttgctggag gagaggttga agatcacctc tgctccataa      480
aggcagagac  tgtacccgga gtgaaaggcg tccacatatc ctcaaaaatc tctatgccgc      540
accacgggtg  ccacatttga atatgagggt ccgcccgatg ggtacgcttg ctgaccgata      600
ctgatggtcg  agtactgcag ggtatgagcc ggtgagacca gcgagcctcc tgaaattcgc      660
gatagttcgg  caggttaagt ttgggggtgg accgagtatc ttccctgct ggaataccac      720
agccgagttg  aacagttttc ttccacgcgc agcggcatcc ccactatcac catgacagtc      780
gtatggcagt  ttgctccacc aatcggcaca aggcttcgtt ggctcgttct tgtggaaagg      840
ctggaaaaac  aagtcgccgc atgaatagcc cgttatgctc aatcggggaa cgtcattatc      900
tctacacctt  tggcatcggc ctcggtgtacc agcggtcgat ccgctcgata ttgtattcgc      960
aatcggccac  tttcacaaaa gaacagctgc tgcgaccttc ataaatccgt atctcatagg     1020
gaactgtaat  tatgaggatt gtggttttta ttctaattcc gtacaaatat atgctttatc     1080
tcagtccttc  tccgaaaaag agccaaaagag aggaactgcc gagatcactt tggaaagagg     1140
tgcttgccac  attttgggga ggggagagca aaggatgtac atcatgatgg catgattctc     1200
cacaaacggc  tcggtatatt cgctgcatcg gcacgagtga cgatacgta cagcttattg     1260
tgtcgcgtat  agccccccaa ctctgatgct ctatgcggtg atccgtctcc tcgatgcgat     1320
aacatccctc  tgctccgtat cggagctgat ccgtccgttc aggtgcgtat cgccagccag     1380
agttccagcc  tgtaggtgtg cggcgtattg ttgctgacct gaggtcgata tagttatacg     1440
aaagcgtagc  tctgtctccg aacggaatac gcg                                     1473

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(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 647 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

```

acatgacgta gtcaatatcc tccggettca atccagcacc ttcgatagct ttgtcataac      60
cagcttggct cccaaccctg caggatgact tgccgtcagt gatatgcac ggctgaaaga      120
cctgttccca ccaattcggc atagatggag caccgcgttt aagagcatgt tccagttctt      180
cgagaactat acatgcgctc cttcacccat taaaaacccg tcacgactgg cactgaaggg      240
gcggcggcct cttgtggagc atcgttgcga gtggagagag cattcattgc attgaacctc      300
ccactccggc agcgcaaatc gacgcctcag agcctcctgc aatattacat tggctttgcc      360
taagcggatc agatggycaag catcgatcag agattggtag aggaagcgca tgcggatgcg      420
atggaatagt taggaccatg gagccgtatt tgatcgagat ctggccggct gcaatatcgg      480
agatcatctt gggatgaaaa acggattgaa acgaggcccg ttctccggat tgtagtcgcc      540
acttcacttt cgaaagtcgt cagaccaccg attccggcag aaacgatcct cccacacgat      600
tcttgtccaa ttggtccaaa tcgaggccgg agtctttaca ctctcat                                     647

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(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1158 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

tgccacaacg	accacggcca	acgccatggg	gccgagtttc	gtagaccggg	aagcggcgag	60
atcatttgtg	cagatgtgat	ctggtatcac	aatgtatttc	tctcgttcac	aactggcggt	120
tcttacagac	gggagccgtg	gatccgctgt	tgcgaaggct	gtattcgacg	atgaagtgat	180
gcgcgaatcg	ctccgcatgt	ggcagctcac	gagatcggtc	acaccatcgg	cctgatgcac	240
aacatgggtgc	cagctactcg	ttcaccatcg	agaacctgcy	cgatccgcag	ttcaccaaaa	300
atacgggtacc	acaccgagta	tcattggacta	tgcccgcaac	aactttgtgg	cgcagcccgg	360
cgacttggag	cgtgggtgtac	gcctgacgcc	tcattcatcg	tgtgtatgac	attcatgcca	420
tcaactggggc	ttatcgtctc	ggcccggagc	caaaacggct	gaagaggaaa	agccgacact	480
gaacgcttgg	tgcgcgagaa	gaaagacgat	cccattgtta	ccttcggagc	acagcagttc	540
cctataccat	cgacccccacg	gatcagaccg	aggatctcag	taacgatcct	tccgtgccgg	600
cgacatgtcc	atcagcaacc	tgaagattat	cgccaagaca	tggacaaatg	gctcctcgaa	660
aaggaagctc	gctacgatga	tctgcggaca	tgcacggaca	gctcatgtcc	caatactacc	720
gccatgtgag	ccacacatgc	cctatatcgg	aggagtggaa	cacttcgaaa	tccgccaggg	780
cgaaagaata	cgctttcccg	tcgcttcata	acaaaagaca	agcaacgcaa	ggcatgaatt	840
ggctcctcaa	tcaggctcgc	acataccgcc	agtggctggc	cgaccggctt	tcctcaacaa	900
ggtagagcag	aactctggga	tgaccgacct	ctgggcaagg	ccatggtggc	ggctctcttc	960
aaccccggtg	gcataggacg	atatacgaag	cagagcagtc	cggacaaccg	ggtgtgtaca	1020
agctcacggt	tacgccaacg	agctgatcga	tgccatcttc	aacgtgaagg	gcaatctgcc	1080
gatgccgata	gttctattca	gaacctggcc	atcgacctca	tgtcggcata	gtggtcttct	1140
tccacgggaa	ggcaagaa					1158

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 651 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

tagaggatcc	ccatcaagtt	tggctccttg	ttcgacgaag	acactaatca	gataataaca	60
gatagatatg	gaagacgaat	tgctgaactt	taattatagg	attccgggtt	gcccgttatt	120
atcaaggtaa	tcggagtcgg	cggtggtgtg	gcaatgctgt	caaaaacatg	taccacggca	180
aggtgcggga	tgtatcttcc	tcctgtgtaa	taccgatgtg	caggctctcg	accgaagcga	240
ggtactgata	ggctgggtact	cggccgtgag	gtgaccaacg	gtctgggtgc	cggtgccgtc	300
cggaagtggc	acgacgagct	gcagaggcca	gcgaagccga	catcgcaaga	tattggatga	360
tgcccatacc	cgtatgggtct	tcgtaacggc	cgtatgggcg	gcggaacggg	taccggtgcg	420
gccccgtgca	tcggtcggat	acacgtgaac	tcaatatcct	cactgtcggc	atcgttacca	480
tcccattcgt	ttcgaaggca	agcgcaagat	tctgcaggca	ctcgaagggg	tggaggaaag	540
cgcaaacgt	agatgcctgc	tcgtggtcaa	taatgaacgg	ctccgcatat	atacaagatc	600
tttaagcttc	gacaatgctt	tttgccaagg	cagacgaaca	ctgaccaacg	c	651

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

gtgctgatgg	tcattttctt	ccttgctgtc	ggtttggaga	tcaagcaggg	attttggtcg	60
gcgaattgtc	ttctttcaag	aaagctatgc	tccccattta	ggagccatag	gagggatgat	120
cgtccctgtc	ctttttcttcc	tgctggtgtt	catgaaggcc	ctggtgcaag	aggtgctgcc	180
atccctatgt	ctacggtata	gcttttgcct	tggcggccct	ggctgttttg	ggaagtcggg	240
ttccgcaagc	ctcaagggtat	tcctgacggc	tttggtctgt	gccgacgata	tgggggtatt	300
atcgttattg	cgctcttcta	tagttcccat	atcaacatcg	ggagttggcc	attgccttcg	360
gtatccattt	catcatgtat	ttgatggggc	gttgcattgt	agcaacttag	ggctttactt	420
cgtctgtact	ttcttttgtt	gctctttttc	ctacagaagc	ggtatccata	ccacaatagc	480
cggtgtgctg	cagctttcat	gattccggcc	cgtcctggac	tacatgccaa	gaatcttcgg	540
ccgagatgcg	ttcccttttc	gaggcaatgc	ccaatgacaa	gatacgacat	caggtagctc	600
tctgatcttg	agccataacc	aaatcaacgt	aatcaacca	tgcgtaagat	tgcgcgtaag	660
gctataagtc	ctatgcagct	catggagagt	atctcagccc	gatagtaggc	tacttcgtct	720
tgcctctctt	tgcttgcca	atgctggcat	cacgctcgga	ggagtcacgg	cagatgcctt	780
gngggcgtgc	ccgatggctt	gattcttggg	cttgttgtcg	gcaaaccctt	gggttacttt	840
tttacctat	ggtttgncaa	gatgaagctc	tgcccttggc	ccgaaggaat	gagcccg	898

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2410 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2410

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

```

agtcataaga agtactacac atagatgata ataatgcctt aaggcttcaa acgtttgaag      60
aataatagtt tcntatttgg ggccctccgc cggatttgtc tgtccggctt tcttcttctg      120
ttcgcgttct ttcgctcgtg ccttacgtct cgctcgcgtt gacgaagttt ctccttccgc      180
tcacgttctt tttcttaagc ttctgctcgc gttccttttg cttgagacgt tgatccttaa      240
gcttgccgca cgggcttttt ctcggttctt ttcccggtgt ttcaattctc gtttcgatcg      300
cgctcctttt ctcgcttggc cttttcaggt gctttctttt cgtcttctca ttttgtgcac      360
gctcttttgg cagccgctga atctgctcta ccagacgtct ttgccttctt gctgcttgag      420
cgatggcaaa gcagctgcat cgagatcgta tcggctgcgg aagaatcggc tgccacaggc      480
ttggctccgg gaggatctgc tccctatcga tgtcgaaagt aataggagta gccgtcatat      540
gctgtccttg tgcggttga tggagacaag aggtttctct tctgtgccga cgtactatcg      600
cgagcgggat cctcggcctc gttcttgtcg gacacgaagg agccggagtg ccagcaggct      660
ctatgtcctc atcctctttg ccgacacttg cgctcgtccg gtcactgtct gccagcgatc      720
gaggacgaag gccgttcggg cacttcttct tttgcgagga aggtcatgta ttgacctatg      780
ctttaccctt gacaagcagc tggtaattgc tctccgatat ggggaacaac aggtgctttc      840
gcccatcgca ctcataaatc cgttcggagc gaaagcatcc ttatatactg ccagcccatg      900
cgtggggtcg ggagagaggt catcagccac tatcgaatgc tcccacgggt ctctgacta      960
tttccagtg tttgctctgta agcgagagaa gttgaatgaa gcaagagcaa aaagtaccct      1020
gtttttatta atgtaccggc aggagcaaga aggatcagac gggtagcgtc gaaagattgg      1080
gttttacaaa aggaggcaaa gagtccggcg atatgctgtc ggtatccaac tgccccaccg      1140
aatatcccag tcgatacccg tatagccggc ctgtacatgg aacggcccgcg gagcaactcg      1200
gtaagcatcg aggaggccaa ttcgggacgt ctgctttcgg ataactcttc accaactgct      1260
tcagggcaga ggtgagccct tggagtctga ctccagcaca taacagagtg cattgaggaa      1320
gtcaatttct ggcgccagtt cgataggggg aatcgctcgc ggcattcatt tcgctctttc      1380
tgaccgaacc gactactcct ttgaggtagg agtcgaaagc tgcccgtaga gttcgttctg      1440
gcgacgatcc attgcggcca attccttcag taatcgggat tgctcagggc ctttgccaga      1500
ttgtcttcgg gatagtactt aggatcaagg cgcggcaacg ttccgcttcc ggcttgttgt      1560
tcattcggtg tagagcataa agagacgata gagcacatcc atcttcttct catagtggg      1620
tagcgacgaa gcagggtctc gtaagtgtca gccgattcgt cgaactctcc atccgctcat      1680
tgaagaccgc tcccatgccc agcagacctt ctgcatgagt ttgccggcag cttccttggc      1740
atcttccgtc atttgtaatt gtgcagatag tattcgggt tgagcggatt ggaagttgcy      1800
gaatcggcag ctgcgcctgt agctcctctt cggtcaccaa agttccgggt tgctgtctcat      1860
catctcttct gcagtagaag aatcgtcagt aggaatgtcg aaattggcct gttgcgtcta      1920
cgtctccaat catcttccag cacacgcttt ccccatttgc ttcgaaagcg gctttgcctt      1980
gcgctatcag ttgaggatta tagaaataga ttaccagaa gctcctccca tttgcattcc      2040
gggcgggtgga ttttgagttt tccgcgggca gagggagcga atccttcaact ctccgcattg      2100
aaaagctttg gctctgctgg agttttgcca tctcctctc ttcgagtcgt ttcttctctg      2160
tatggcatag gcattgataa cgctgtcgat aatggccagt cgctgtcttc cggcatggca      2220
gcaagagcaa gaaggctgtc ctgctcgtgc acgacttggc atgaccgacc aattcatcga      2280
gccgggagga aagttcggct acgcttgta gtccggattg agtctgttca gtacaccgct      2340
tgccgcagag aacaggctga gctttcaggt actgcttctt ttgatataga tgtcgccaaa      2400
caatctgcag                                     2410

```

(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1127 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1127

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

```

gcttcgcagg agccgccccca aggactatatt gctgggattt tcttcttgcg tgtacacaag      60
gacgaattgg aaatgcttct tgggtggagtt cttatttcgaa aatagggttcg gagggacaaa    120
acaagacttt cctgatcagc atgaagtggc acagttccgc catcagcaac tgcacggtga    180
tgagacgccc attttgtgct cgatgatata ttcgacaaac tggatgccac ccgtgtggag    240
cggatatccg ccttgctcggc ggtaacggtt tcgggcagat cttcatcaca gatagaatcg    300
gaaaaacttg gacgagatta tcgcttcttg gagtggaggat tacgcctttt caaaatagaa    360
aacggacaga tattccaata ataggtatcc ttgatggaaa aaagcgaaat acagaaagtg    420
gatcaggtaa ttcgggcttg gtggaggatg aaccgctcat gtatgaacga cttctcgagg    480
tggaagcttt gaagctcttg ccacagggtg tggggcctct ctataaattc ctcggtcgtg    540
ccgattcatg acggcgtact gtacctgaca ttcaattcgt ccggtgttgc agccagctga    600
gcaacaacaa agcagagttg ctcttcaggc tgaatacgcc gtggatgcag aactgattcg    660
acaaatagtt ttcttatagg tctttgcgat ctcttcaat gactatcgaa aaaagggggg    720
gggagacttt aaccgaacgt gcggtttttt gcagacgac gcagtcgata atcttgatcc    780
tcttccatca agtgccagca ttcgctcggg aacgaatgta gaaagggtac gtaggcattg    840
cttactgtca tgttggaag agtagccagt tctctcgcac taggtagata cttagggtag    900
ctccatcatt ctcaaaccg aaattctctt tagtatcagt agcgtttcgg ccagtcggcc    960
acgaacatgt ttctgcgtga cgttacggtt cgctttcttg catagcccaa ctctttggcc   1020
aaaggcctta ggaagtatct acagaatgag gtgtttcctt tcagcaatgc ttcgatagtt   1080
cgaccgggat ggcaaggact ttggagtttc aaccggcaatg gctgtgg      1127

```

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

```

aagtcgctgc ccatgaagta gtctttcttg gccgaatgct ccaactgatgg acgggtcttc      60
ttcatagcag gcaggtagag ccatttgtca tcatccttcc gatctgatca taatcccatg    120
tgaggaaacc ggtgccttgg acatcgccgg atagaggaaa aacataatag tcttcttgtc    180
tttcttatcc ttacctgtc aatggagtag gaaatgagtt tgcgctcacg tacggctcct    240
cgtttttaat gagcttcata gtgagttcgg agcgacgcgt atcaccgtcg gggcgtcttt    300
tacgcgctgt gctatgtcgc gccctgtctg ggcgtagatg ctgaagagac cattgctacc    360
atggctgtca tgagggtggt ctttgccaat cgttcatcgt ttctgtttt tgtagctgt    420
tctatattta gtcttcccca ttttcaggaa ggcaaaaatg tacaggcata tgcctaatacg    480
gtaaccgtgt cgggagagat tggctctgcc tcttttttga aaccgatacg gcaaaatctc    540
tttcccgaa attcggaatc gtcggaacag ggagtggcgt gatgcagagt ctgccaaaag    600
ggctgtgaac a                                     611

```

(2) INFORMATION FOR SEQ ID NO:892

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3208 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3208

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

ccgcaaatac	ttcgagaagg	acaaggctct	ggaacgacgc	ttccagatgt	gatggtggac	60
gagccggacg	agctaagctc	catctccatc	ctccgggggt	gaaggagaaa	tacgagaatc	120
accacaaagt	gcggatcaag	gatgatgcac	cattgcggcc	gtgaagttgt	cgcaccgcta	180
cattacggag	cggttctgcc	cgacaaggcc	atcgacctga	tggatgaggc	tgccgctcgt	240
ctgcatgga	agtggattcg	ctgccggagg	agctggacga	gatctcgccg	aggacaagca	300
acttgagatc	gaacgcgaag	ccatcaagcg	agagaatgac	gaaagaaggc	acagttcctc	360
gacagggaaa	tagccgaact	caaggagaaa	gagcctcgga	gaaagcccaa	tggcagaacg	420
aaaaagatcg	gatcaatcag	atcagcagct	caagatagat	atagaggagc	tgaagtttca	480
ggccgatcgt	ccgaacggga	gggcgattac	ggacgagtgg	ccgagatacg	ctacggacta	540
tcaagcagaa	agagacggag	atcgacacga	tacagcagca	gctgcacgat	tgcagcgtgg	600
cggctccatg	atcaaggagg	aagtggaggc	cgacgactag	ccgacatcgt	gtcgcgctgg	660
acgggtatcc	ccgtcagccg	catgctcaga	gcgagcgcga	caagctgctt	catctggagg	720
acgagctgca	caagccgtga	tcggtcagga	cgaagccatc	cgtgccgtgg	ccgatgccgt	780
ccgtgcagcc	gggcaggcct	tcaggatccc	aagcgtccga	tcggttcgtt	catttccctc	840
gtactacggg	ggtgggcaag	acggagtgtg	cacgtgcctt	ggcgaattgc	tcttcgatga	900
tgagagcatg	cttacgcgaa	tagacatgag	cagtatcagg	agaagtccag	tgccacgcgt	960
ctgatcggtg	cgccctccgg	tatgtgggct	atgacgaggg	tggccaattg	acggaagcca	1020
ttcgccgcag	ccttattccg	tggtgctttt	cgatgaaata	gaaaaagctc	acccggattg	1080
ttcaacgtat	tgctgcaagt	cctcgacgat	ggccgcctga	ccgacaaaag	gggcatgtgg	1140
taaacttcaa	gaatacgctc	atcatcatga	cgctcgacct	ggttccggaca	tcattccgca	1200
gcggatgcag	aactcaccgg	cggagatcgc	cggtcctcca	cggcccgagc	ggccgatgag	1260
gtgatgcagc	tactaagcat	acgatccgcc	cagatgttct	gaaccgtatc	gacgagacca	1320
tcgcttcacg	ccactgaccg	agaagygat	ctacgagatc	gtccgcttgc	agtcgatggc	1380
atcgtgcgcc	aactggccga	taacgacgtg	gtgctccact	aacggaggct	gtcgtgacct	1440
ttgccgctcg	cgagggatat	gatccgcagt	cggagcgcgt	cctgtgaagc	gagtcctgca	1500
gcgatccgtc	ctcaacgagt	gagcaaggca	ctcttgcccg	atacgggtga	cagtacacgt	1560
cccgtccat	cgattgcata	gacggatcaa	tcgtcttccg	caacgaatag	tagcctcgcc	1620
tgccctattc	ctcttattcc	ttcaaggctc	cttcggggcg	gtggctgccca	cttcccggag	1680
gagccctttt	tatgtttcaa	ggggatctct	cgagtcaccc	ctaaggggtc	tatatagaga	1740
ggatagtatc	ctctcatatg	agacatagta	tcctctcata	tgagaccata	gtatcctctc	1800
gtatgagacc	atatatcctc	tcatatgaga	ccatagtatc	ctctcgatat	agaccatagt	1860
atctctcatg	tgagaccata	gtatcctctc	gtatgagacc	atagtatcct	ccatatgaga	1920
ccatagtatc	ctctcatatg	agaccatagt	atcctcttat	taagactata	ctattctctc	1980
cgtattttat	atgttttttt	caggaaatga	tttcaacttt	tcgacagagg	agaaaagcaa	2040
gggatggcaa	tatcggctcg	ttcgtctgtg	gttttcaact	tcacatacag	cgccatggag	2100
caaatgggag	gggcgaccgg	aaaaaggatt	gtttcccgga	aagacgaaca	agggcttccct	2160
ctgcggaggt	tatcgggtta	ccttccggaa	gtagctgtag	aagagatgcc	gagcagtgct	2220
aggctgatgg	gaaaggccga	ccagataccg	gccactgcac	gggcgtattg	cccgatatga	2280
atacgaatcc	cagcaaatag	gaggtatcgg	tgccagcaat	acgtggcaga	aagctgctgc	2340
cggagccaga	aacgaacgcg	ctccattcct	cgacagcat	tggaaatagat	ggcttggagg	2400
gatctccgaa	ttggtagacg	acaacgggga	tcaacgtaag	ggcaacgatg	gcgccacctc	2460
ttcgtcgggc	gtgaagagga	aggaaaagct	gtgccgtgta	gcaaaagcag	tacaaccaca	2520
acgcaggcag	tcaaagcggc	cattcgggtg	cagtggcggc	tacgcggcgg	acttcgtcgg	2580
gtttgccgtg	cagcttgagt	gactgatgcg	gatgggtggg	gcagcaccaa	gcccgttaata	2640
gacgagttag	cgagcgtggg	gatgacgcag	acgatctggc	gtgctgccag	agcctatcgc	2700
cgagtcgccc	gacaaaagg	acggcgatgg	tgaagagggc	cgatcgagtc	ccatctggac	2760
ggcaacgggg	agtccgacgg	agaataggcg	gcgtaggcgc	gacggatatg	catctgccgg	2820
cagaaggcgt	ggcggatcgc	tgccatgagg	gtctgcgata	gaggaaaagg	acgatgggtga	2880
cgagcatcag	cggcggctca	acaggggtgg	atagcccgcg	ccgaggagtc	ccatttcggg	2940
agaccgcctt	tgccgaatat	cagcaggtag	ttcagcccga	cattgaagaa	ttgcccagata	3000

tggtaatata	catcggggtg	cgcgtatcgc	tcattgccga	tagaattgct	tgaaggcatt	3060
gaataccgtg	acgaggaaga	ggcctccacc	tgtacccaat	aataggggat	ggcgagaggg	3120
cggagcgagg	gtgggagttg	aatgtatcga	acaggggaac	catcacggct	gccacacctg	3180
cgaggagagt	ccgatcgctn	tattgagg				3208

(2) INFORMATION FOR SEQ ID NO:893

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 509 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...509
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

gagatccgta	ttgacattga	gggcaaagcc	atgcatcggt	atgtgccgat	gcttttcacc	60
cctatcgcg	agattttg	agtagcccc	ggtatatcg	atccagccat	acgccggatg	120
ctccggccga	acgttcgcct	ttcagacgaa	tatggcaatg	agatcgatga	tacactgctc	180
aagcatttcg	atatagtgcg	taagccgata	ccgtattggt	cgagatcgaa	tatgggggat	240
cccgtatttg	tcccggcccc	tggtaggtga	tatccccctc	tcgtttctata	tgaatagtcg	300
gatgtngcga	cttttcagct	cggactcgga	cagcaacaga	tttcttcatg	accogtggtt	360
gcccagggtt	agaaccggnt	catgctcaca	gagaacagcg	tattttgctg	nttcctgttt	420
tccaatttgt	ctggctacaa	gatcatggaa	agaagcttgg	cgttgcaagg	tcagtgccga	480
tttcgtaacc	atgccgtncg	ncagtcctg				509

(2) INFORMATION FOR SEQ ID NO:894

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1747 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1747
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

tcgttccccg	caatacccgt	ggcagacaga	agcgcgagag	tatagatcgc	tgcaggaagc	60
tttgagagag	gatttgcccc	ttatcacttt	cccggccgct	tttggtcccc	tctgatcgaa	120
ggtaagggtc	aggatacccc	gtggaagaga	gctttgtccg	tcaggcctac	gccagcaaac	180
gggatatagt	tccacttttt	tcgatggact	taattcaaag	cgtttctacc	ggatagagcg	240
tctcctcagc	tccttggtct	taagttcaat	atcgggatgg	ctttgctgcc	ggataaatgt	300

ttcggagcaa	gggacgccat	tttcgcgtat	tgcgaggccg	gccattccat	ggcaatctct	360
tgcgtctgcc	ccccgagata	cggccgagca	ggacttcata	tccgttcact	ggtatatgac	420
ctcagcccg	cggccttaaa	gaataacccat	taaaccatg	tgcctcgaac	ccataattgc	480
tccgatttca	ccgagttgct	cgagcaggag	ctgactgccg	atcgttttct	gcggatgaca	540
acaaagccgg	caatgagatc	tatgttttta	cggccgaaga	agctccgctt	gcatgaaaga	600
agtaggccga	ctgcgagaag	aagcctttcg	gcattatgcg	gaggtactgg	caaggcgatc	660
gatatagacg	agttcgacac	catgccggga	gctacaaaca	gctgatcgta	tgggatccgc	720
aaaacaaggc	tataccggag	gctaccgctt	tatctatggg	cgggacgttg	ctttcgatac	780
cgatgcaagc	ctttgctggc	aacggcagag	atgtttcgct	tcagtgatgc	tttttgcacg	840
attatctccc	ctacacagtc	gaattgggac	gttcggttcg	gtgctccagt	accaatcgac	900
acggatgggc	acaaaggcca	tttttgtgct	gacaatcttt	gggacggtat	cggagcactc	960
actgtagtca	atccagaggc	ctctattttct	atggcaagg	gaccatgtac	aaagactatg	1020
atcggcgagt	cgcaatctga	tccgttatct	tcttcgcaag	cacttctccg	atccggaagc	1080
ttggtcaagc	ctattcatcc	cctaccgata	gagatcagtg	cggaggagaa	gccttgttct	1140
cctcatccga	ctttgacacc	aattacaaga	ctctcatata	gaagtgcgca	agctgggtat	1200
caatatccct	cctctcgtga	gtgcaatata	gctttgtctc	cggagatgcg	tgttttcggc	1260
actgcagtga	atgatctttc	ggagaggtgg	aggaaaccgg	catattcatt	gctgtgggta	1320
agacctggaa	gagaaaaaac	aacggcacat	agagagcttc	atcctcagcc	ggacgaaaaa	1380
aaaggtctcg	acagtagcaa	tggccgatca	taacgaccgc	gacgccaagg	cgaagagatc	1440
gcgctgaaac	acctcaggca	gcaaggctat	agatagaagc	cctgaactgg	cagtcggggc	1500
ggcgcgagct	ggatatcggt	catccacgtc	cagagaactg	gtcgtttgtg	aagtcaagac	1560
tcgtaccgag	gctttctact	ggcccccgaa	gaggctgtgg	acgcacgcaa	gcggcgatga	1620
tttccgaatc	tgcgcatcac	tatgtgcgta	tgtacgccat	cgatctccgg	tacgcttcga	1680
tgttatatct	gtagttttga	gtgctgatgg	ttcctcaaac	gcatcgaaca	cagagaaaat	1740
gccttcc						1747

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1092 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1092

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

tcgaactcgt	gtcggatgag	acgaccgtct	cctcggcgga	tatcaaggcg	tctttgaccg	60
cgctgccaaa	gtgctcatcc	gtctgcttca	ggacggcaga	gcattgattg	tggcgacatg	120
ggtacctacc	gccccagcat	tacggcgagg	ccggttcggg	cgttgatagt	gccgacaagg	180
tgacggtgga	gcttgtgaca	aggcgaaggt	catctatacg	cctcgtatga	aggtaaaaac	240
tgctccaagg	gcgtccgtat	ggagcgtgcc	gagcgtgtcc	ttgatgtgcc	ttacctctt	300
cgatcaagcc	gaatgagaac	aacagcgcg	gatcttcgtc	ctcgacaaca	acggacacgc	360
cggcctgtaa	acaaagcatt	taatagcgac	aagataaatc	tgaacgtcct	tattcgacaa	420
tacatcccta	aaggttcttc	ttcatcgata	taacgaccaa	acagatctcc	attatacaca	480
acaaaccgaa	ctcagaccag	gaaagaaact	cggattcaga	acgccgttcg	aatgctttct	540
ccaaattcac	cttagtggtg	catttatatt	tggaaatctg	acagccaaaa	aaagaaagaa	600
aaacgcaacc	gaataagaat	aattgctata	tttgcgtcgc	tatcgggatg	tagcacagtt	660
ggtagcgcg	caggttcggg	acgtgggggc	ggaagtctga	gtcttctcat	cccgacaacg	720
ccgtcaatat	tccttgggat	tattgacggc	gtttttttgt	ctgtaacaaa	tgcaaatcct	780
cacctctcct	aaacagagag	aactgacgga	ggggtctgca	aaaagggcag	atagttacat	840
gtttttgccc	aaaaagaact	gcatcagcag	caaattcaag	acagcaaagc	acctcccatc	900
aagacgatct	ggcgctgttc	aggcttgagg	acagaaaata	ggccactatg	ccggtgacga	960
agatgaccaa	tatcagaaaa	tgatgatacg	tgtaatagct	gatcttcgga	gcttcattat	1020
gtcattgtca	aagagaaaaa	aatcagagcg	aaagagcgcg	gagttttag	ccacgagtcg	1080

aagttcctgc ac

1092

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

```

ccctgccaaa agtaacaaag gaagcaatga ccatggacaa aagaactgtc gacagccagt      60
attacagagc ctaacgtaaa gagggccggc agtatgtgac gggcttcata ctcccgggat      120
gccgtctttg caaatgaata cgggcaaacc ggagttgtac acctgacgga agaacttctt      180
aaaatcgatt cgccgttatg gaaaacaaaag gtttccggaa acaagcatac gttgtatccg      240
gccttaagag acgcagacta aaatcaatat cttcaccgaa gcgcattctt tccgaaaacc      300
accgagttgc cgatagaccg aaagtttgca gccaaaattg aaatgcgagg atagaacttg      360
tccagtcgta ctcttctacc cccacgaatg ccccggtcgt gaagaaagag gtcatcgcat      420
agttaatggc tttttgtatg gtgagaatcc ttctgtgctg gcacagggc cggcgaaagc      480
atctgcttgc tctgttcgat cctttttttt actgcggcta tataaccgct cggcagtaga      540
catccgagtc caatatcaac agatattcgc ccacagccat tcgtgcacaa tgttgcgcgc      600
agcagccggt cctccattcg gcaactctac atactgtttc ggagaagttc tctgacgcga      660
gtccacttct ttgtcgcagc acacagcgaa ccatcttcta cgatgatcac ttcaaagtcg      720
ctattcgtct gtatagcaga ctctccagca gctccgcac ttcgtcgggg cgattataaa      780
cgggataata atagagaaga ccngggggg                                     809

```

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

```

ctgtctgata ttgcccaagt agatggcttc tggatggcgc aaagatgaaa tgtccaatgt      60
gcagacgggg catcgactg tactggaaga ttaagaacgg agtttaaccg tccgatcgac      120
gaatcgaagt tcaactgtac ttctctcaga aaggttctct ctaaactatg gaagtgaaga      180

```

aaaacacagt	ggtgctcgcc	ttctgatttg	gttcgtggcc	attcttctct	tccactcctc	240
acggcgtggg	gacaggaagg	ggaggggagt	gcccgatata	gattcaaagg	attctggata	300
cctaccatgc	cgtacgcagc	tcttctcctt	ttgatttcat	gagtcgcgta	cgagagttag	360
aggtgagctg	gagaggtcgt	tcggtaattc	gaagtagccg	tatcgggtcaa	tgccacctac	420
aatgctctac	tgaaagacga	gccggcctac	gtttacgtga	agccttcttc	gagcatcagg	480
aagagcattg	gggttgcgcc	tcggacgaca	gattgtcatt	tggggggctg	ccgacggtgg	540
cgcatacagg	atctgatctc	cccgatggat	atgaccgagt	ttctggcaag	gattacgatg	600
atattcgtat	gccgggtcaat	gcattgcgtt	tctctgtttc	aacgaatcga	tgaaagtggg	660
agtcgtggta	ctgcctgtat	tcgagggtac	cgtctgcctg	tggatcctcg	caatccttgg	720
aatatcttct	cccttcgccc	attgctcagg	ggatgaatat	cgtctggaaa	gaagaagccg	780
gcaaccggcc	ttcaaggttg	ccaatatcga	gtacggtgcg	cgatggagca	ctagctctcc	840
ggtatcgact	tcgctttggc	tgcatctgat	acatggaaca	aaatgcccg	catcgaagta	900
cagggcattg	tgccgacgga	aatcatcgta	gcctcgctat	taatcgtatg	ggattggctg	960
gcggcgacct	cttcctgtacc	cgtcggacag	ttggttttca	agggagagct	tgcgttcaat	1020
atcgacca						1028

(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 755 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

acgcctgaaa	tgaagcagct	catctcaggc	atcaaagaag	taagcaaacc	tttcggggaga	60
ttgccccaaac	acaccgtccg	ctctttgggg	gagaaattac	cttacgggac	gaggaggtct	120
gcgaacggct	tttcgtcagt	cctcgtactt	gcaggactat	cggaacaagg	gcattatccc	180
ctacatccaa	atcgcgggaa	aatcctttat	cgacactccg	acatcaacct	actactgcaa	240
gagaatatgt	caggcagaga	actctatagc	ctgttcaacc	atagcttttg	ctcgtcaagt	300
aaagcttttg	attctctcgc	gaaagcaaaa	ctcttgga	ccaatccgag	agtttttgct	360
gtatataaac	aggagacata	ggattatca	ctgggatatt	tccgagggct	tccaatgctg	420
aataatagaa	cctccagcat	ccgctctgct	tgcatctcga	caattggcga	attgaggaca	480
agagtaagat	atcgggtaaa	agttcttttc	ccttcatact	aagatgcaat	attgctccta	540
ggtaataatg	tcagcatctt	cctccatctt	ataagcaata	cctacactcc	atcttttgag	600
agaagaatgg	tattttttacg	aggtcgtgga	gctgtggata	agtagagcta	tctaaacaaa	660
tacttgaagt	ctctatacca	aatttattaa	ggtcggctac	tcttacaaaa	ggtatccatt	720
ttcttgataa	gcatacctac	ccggctctat	gggat			755

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2744 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2744

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

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tcgacggcac tgaaccagaa cgtatcgctg aacgtataga ccaaggctca acgactccac      60
tgccgagtat cgtgattact cgtggaaagg atattttctt gacggctctt ccaatccgga      120
tacattgcgt actgtcggta caagtaccgg cggacaagggt gggtaatcgt ccaaaacaaa      180
aacaggatgg taaaggactg gccagtgac tggtagcatt ggcaagccat gccacctgtg      240
acggacgctc gtgaaatgcg atatgatatt atagacgagc atgaagaagg gtgcccgggc      300
ggatgaccga tctccaactt gtttacgcag actatgaact cggacagtcc cacaggctgg      360
ctgtaggctc gattgtcatc agatagacga tactgcaact gcaaaaacgc cccaaccgac      420
gacattgttc agaaatctaa acgtttccat tccatatcat tgtattcttc tatgatgact      480
taaacgtatt agcaggggca aaccctactt ctgcgcgata aaaatgttga tgggagtagc      540
caaaaatccc agtgggcacg aatctgattc tccaaaaaac gcttataagc tctttcacc      600
actgaggcag attggcaaaa aaggcaaatg aaggcacgcc gtcggaagct gcatcacata      660
ttttatcttg atgtatttac ctttgagca ggtggtggcg tagcctcgat aatgggtagc      720
atcacttcat tcagctgtgt gtgggaatac gagtcgagcg gtgtgcatag acctgattga      780
ccgttccaac actttgaaaa tcctttgttt ggtcatagcc gatatgaaga gaaagggaaa      840
tccgtaaatt gagcaaaacg ctgccggatg gcattctcaa actcttgatg acggcttgac      900
ttttatcttc caccaagtcc cacttgltga tcatacaacc agtcccttgc tattgcgtg      960
gataatctga aagatatcca atcctgcgac tccacacctc gtgtggcatc cagcatcagc      1020
acacatacgc ggagttttcg atggcacgaa tggatcgaat aacggagtag tattccaatc      1080
ttcattcact ttgccctttt tgcgaatacc ggctgtgtcg acaaggtaaa attgagtcg      1140
aacttattgt acttagtgta tatagagtc cttgtctgcc tgcaatatcc gtcacgatat      1200
gctgtctctc tccgatgaag gcattagcaa ggagcttttc cctgcattgg ggcggcctac      1260
gatggctatt cgaggagtgt ttcgtccaaa tccgattgtc cgttctctgc cggcaatagc      1320
tcctcacctc gtcgaagcaa tcgcctgttc ccgaaccgct gacagctgca atcagtaagg      1380
atcgcccaag ccaaaggaat agaattcgga agcggaataa tatcttcggt attgtccacc      1440
ttattggcta cgactataac cggttttttg ttcggcgagc tatctcggcg acttgttcgt      1500
caagagaagt cactccggtt ggttgtctgc gacgaagagg actacatctg ctctctcgac      1560
agcaatatca cttgcttatt gatttcttcc tcgaaaacat cttccgaatt gaccaccaac      1620
ctccggtatc gacgatggaa aactcccgac cgttccaatg caccgcgctg actgcctatc      1680
gcgcgtagta ccggcctctt cggctacgat ggcttccggc tttgggtaag gcggttgaa      1740
aatgtgctct tgcccacatt cggaggccta cgatggcgac taatgctccc atatctatct      1800
ctactctatg attcgttctg attgttgctt gtcaggctac gaccgacgaa ggactaatcc      1860
aatgatagcc gaaggcacga agcagattat cctgttgcg ccagtctttt tgaccttcac      1920
aaagatttcc aagaaaattt tctttccgaa gaaacgttcc aatcacgccg ggccattgac      1980
cctacacggt tgatggcgcg ccttttaggc cgatgattat tcctttttga gaattacgct      2040
ccacgatgat cagcgataat tacggataat ggtcttctcc tccttgaatt cctccacgac      2100
cacttctccg catagggaat ttctttttga taatacagca gtatcttctc acgaatatct      2160
ccgtaacgaa aaaacgtgcc ggcttgctcg tgagtgcac tttttaaaagt aaggaggaga      2220
tgggggaatg aggctttcga tacgcttctg cagcatccga cgttaaagtt gttcgtggcc      2280
gaaagagggt gaatttctgc tttggcaata tattgcgcca ctctccaca agttgttcca      2340
atgcttctg atgctcaggt cgatcttgtt tgagaccaga agtacagggc attccattcg      2400
tatacgcgag cgagaaaatc agcattctta tcagccttct ccaccacgtc gtcacataaa      2460
ccagcacatc ggcaccccg agagcagatt cggagaactc cgcatttctt gttggagttt      2520
gtaattggga cgaagtactc ccggtgtacg gaataaacga tttgcatctc cggcgtattc      2580
acaatcccca tgattcttgt ctggtggtct gcgccttgga ggtaatgata gaaatccgct      2640
caccgaaagc agatttatca gtgtactctt cccaacgttg ggttttcaa cgatatgaca      2700
aatcccgaac ggtgaccgga ctctctact tgcatttcca agct      2744

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(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 506 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

cgacggttgt	agtcggtctt	cctataaccg	aatgagagcg	atgaccaatg	atattttcca	60
taatccta	tagaataaga	ttgtttatga	ttaagatgta	attgcaa	atgcttcattc	120
agcaactctg	caaaggtagc	aaataataat	ctgttaattg	cttttggttc	gataaatgaa	180
agcaggtagc	caaagtctat	ttcggacgat	accaatccac	taacattcgt	acacctgtgg	240
ttatgcgatc	cgatgcttcc	agcctaaggc	atggagcttg	cttacatccg	tcagttgcgc	300
atcgtgccgt	ccggttttga	ggagtcgaac	tcgataaggc	cctgtaaccg	atggtctttg	360
ctatcagcga	agccaaatcg	cgaatggaga	ttcctccccg	gtgccaatgt	tgatatggca	420
gttgccgcatc	ttcttgagtc	cgtggggata	catatcggcg	aagtcgcaag	tgctccatga	480
ggaataacgca	gcattcggcc	atctct				506

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 602 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

gttctcgctt	cttcatgtct	aaaaaaaaacac	ttcgttctcc	tccgacaata	agttttttcc	60
ttgaaaagcc	tccgaaagag	cagagaatcc	ataaagtcac	catggaaata	catcgtgtat	120
tcctgacttt	tttcttgcac	tttttgtttg	caagttttcg	aatttggttc	ttctcgattt	180
gttttatatt	ttcaggatct	tcatttcaaa	agaataagaa	accgtcacag	cttttagactg	240
cgagaacttg	gcaaagcgct	catcattaaa	aatattgcaa	aaaataatct	ggcctaacac	300
aactttttac	taatcaaagc	gagagtattg	cctcccgttt	tgatatatta	taggacaagt	360
tatccaaaag	cctatagtca	aaaaacagac	ttgttctttt	cgataataat	aataactact	420
gtaccatcat	catagatgat	gtccaaacct	caacctcttg	tgcaactgag	cttgagcctc	480
tgtgcaaagt	ttcaacagct	acttcttgtg	gaagtgccac	cgtttcagtt	gcacctgctt	540
cggggcaaaag	cacatagcag	ctaattgctac	ggctaacgat	gcgaaaaatt	cttcatagtc	600
tt						602

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 694 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...694

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

ccaattccgc	aagattttga	cagagaaggt	agaagacgtt	tcttctcacc	tttttctccc	60
cctgtttttt	gtcagttccg	gttttgcaaa	cgaagttggg	ttgtggacag	tgcttccctg	120
tggctactga	caggtgcttt	caccttggtg	ccattatcgg	caaattcggc	ggtacgtatg	180
tggctgcaag	gttctgggag	agaggaagaa	agcatcgctt	tacttagggg	cgttcatgaa	240
tacgtggcc	tgatggagct	tgtcgtgctg	gccatcggac	gcgagcttgg	catctccctc	300
cggttatatt	cacaattctg	gtgatgatga	ccctgatcac	cacttcatga	cgactccctt	360
gctccgactc	atagatcttt	tcttcaaacg	cggaccgagc	ttgagaatgc	agcacttcag	420
aaagagaata	gcggggccgt	atgctttcgt	tcggaagggc	ttcgagtggg	gcacatttgc	480
ttcatgccac	gacctcttga	tgcatacggg	cgatgagaaa	ccctctgtta	cggtctcttct	540
atcactgtcg	ggagcgacac	gaatctgact	tcttcggaag	tatatgaaaa	agagcttttg	600
ctcctatccg	agaagaaaagc	gatcgcagac	gactcccatc	agaacactgc	atcaccacac	660
gttcgagcat	ccggaggctt	gaggtatacc	tacg			694

(2) INFORMATION FOR SEQ ID NO:903

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 857 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

ggactcaatg	tcttcccttt	ttcagcaggc	aatagcgtct	cgaattcttg	aacggcatca	60
accccgatct	tctgatttat	atgcntcacg	gacgtttggg	caggccattc	cactgaaagc	120
ggaaggcatg	gcttgcgcaa	gcaaaatttt	cctattcttg	cacttcttta	caatcggcaa	180
ttcttcgaga	gacttggttg	aagacaagca	aggtatggta	ggcgggcttc	ctggcacaaa	240
gcgtacgact	cccaggttgg	acggagccat	ggttcccttt	gcattgattg	ctctgaaaaa	300
gatgccaaga	cagggttaca	actcttcaga	accatccccg	gacactggag	gtattttacca	360
gtctggtgaa	caaatacatc	accctaaaga	acaacctaac	aaggagaagc	gcgttgccat	420
ctactatttc	aaaggaccgg	gcaaaacagc	ctcgtagcac	aaggaaataga	gacctgcct	480
tctattttata	tgtattgcgc	aagatgcaga	gcgaaggcta	tgatctcacc	ggattacccc	540
cgatgaagca	gctttcgaaa	agatcatcat	gacgcaagga	gctattttta	tagctatgcc	600
gaaggcaatc	tggcacgctt	taccgaaagc	ggctatctgc	attcgtaccc	acaagtgatt	660
tgaagcagtg	gatgcaagaa	gtccttcacc	caatcaaatt	caacatttgc	aagaacgcta	720
tggagaagct	cccgggaata	ctattcgatg	gagcaaaacg	gagtaggcgg	catcggtgta	780
accctgtgca	agttcggcaa	tgtcgttctt	ttgcctcagc	ccgtacaagg	tggagggggc	840
aacgactttc	aaggccg					857

(2) INFORMATION FOR SEQ ID NO:904

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...702

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

```

agaaacccta actttcctat ttccgcttag atcgaactga cgtaaagaaa gaccaatggt      60
catatcgcaa aaatgccgta caatgggtctc taataagccc tgggcgatgt tgtacttctt      120
ctcgatggca tacttgctcc gaggtgcga ggtattcttc cacaatgtga agacgcttgg      180
aatcagtc aaatgtttgaca tgattactgc tttttttgac ctctccgatt ccgtacacgt      240
cgttctaaaa atggcggttt agcggtttgga aaaacgtggc tcgggaattt tttcttttgg      300
ttcgggaagt aaaaatttta cgcgccacaa cggaaaaatt ctctcgtga atctcagaaa      360
actcgaaccg cattccggcc aattccggaa ccaattcgtg aggaatctgc ttataggcat      420
ccttttctgc gcacgttagt gaagtaatct tggcgaaacg ccttcgacct ctcccgtacc      480
ttacttccaa tctaagtgat tgtgtcttat gtggaattca tctcgtttcc ctctgtaatc      540
agcattcgat gcgaggatag gataggattt ttttattttt gagacaaaaa aaaagaatac      600
ccctctgact atagaaaaca caaggcgccg gaaaagggaa gttgtccgat cttcaccttt      660
ctgtatccga tagagggaga ttagagcctg actgtaaaaa ag                               702

```

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

```

ggaaattccc taatgattcc aaatacaacg caatcctaca gattggaggg gctggcctga      60
ggaagcactt tgccagctga gtggagatag ctgggttact cctcgggaaa actcatgctt      120
tcttctttca cagatctgtc attgctgatt ttatgaaaag catgtgctat agttggaaga      180
cgataaaaacc gatggtattg naaccccatg ctgggagcct ctacctccta tgatgcccg      240
aattgagcat accatgccta tacagttttg ggatatacag tttcgaatgg agccattacc      300
tgattatccg caatccatgg ggagtgcact agccaacagg agaggagtgc taagcacaag      360
agattgggtt atccacttcg ataatatgaa gtgttcaatc tatccaaaga cgatggcatt      420

```

ttcgcaactcc gacttgataa atgagagaga acttctggtgta catcgcatat atgtattgat 480
 atcagattat ttatacgggtt tgagaacgat ggag 514

(2) INFORMATION FOR SEQ ID NO:906

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 640 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...640

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

ggcgatttct	tcttgcaact	cgggacgaat	gagaggaatg	ggaattttcc	aaactcctgc	60
ttaccaatac	ctgtaaggat	tgttcccgaa	caagcttttt	gagtagttgc	tgtataggta	120
gggacttgaa	aagcgtagc	aatgtcttgg	attgatttga	tttgagcgca	caacatagaa	180
gccagtcgag	cagagcattg	gtcataatcg	tccgttatca	atgcacaact	actcaaagac	240
ccctcataga	tgaacaacac	acatcgccct	gggttacgat	acgccttgca	cgtggggcag	300
gtcttcacca	ttttcgtaca	aacagccctgt	aatgtcgccc	gactgccaat	attagccaac	360
tcaatgtagc	gatacttcac	atcacattct	gggtatagtt	gctgtcttta	atgggtgcaga	420
cctcaccaag	aggagcgaca	cgccagtgtg	tgccgatact	gcattgatgt	aatcctcata	480
cttaggcaaa	aatactctgc	atcaatgcgt	ccactttcaa	ggaagctctc	tttgagtgtt	540
ttacgttgta	agcatctata	ttggctacaa	agtcttgcac	ccctaagccg	ccaatagata	600
gctctcagca	gaggagtaga	gggatattcc	ctctgtcact			640

(2) INFORMATION FOR SEQ ID NO:907

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 466 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

ggataaaca	accttaccgt	tcatgtcgaa	cagagatacc	tgacgaccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggttaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taattttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaagta	gcaccaccat	cttctgatat	agaaaccaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300

agcaatataa ccaactatgt aattcttgcc ggcttcaatc ttgcactagt cttgagagca	360
agattgttga tagtctgcat ttccggatca cttcttctga ttgggccaaa atggtcatat	420
catcagccca gactgcagat ggtacttgca cgctttatat ccaggg	466

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

gcgtacgacc ctttcgatgg ggcataaaca acgaaagaaa acgagacaaa acaaaaaacg	60
aatatagaat tatgggaaaa atcattggaa ttgacttagc acaacgaact cttgtgtctc	120
tgtattggaa ggtaacgaac ctatcgtatt acaaacagtg agggcaagcg cacaacgccc	180
tcggtagtgg cttttgggat ggtggcgagc gtaagggtgg cgatccggcc aagcgtcagg	240
ccatcccaat ccgaccaaga cgatatactc tatcaaagcg ttcattggcg aaactacgat	300
caggtttcca gagaagtggg gagagtggca ttcaaggtag tactggggac aataatactc	360
cgcgcgtaga tatagacggg cgtctctata cgcgcaggaa atttcggcca tgatccttca	420
gaagatgaag aagacggccg agactacctc ggtcagggaag taacggaggc cgtgatcact	480
gtgcccgcac cttcaacgac gctcaacgtc aggcacgaa agaagcagga gagatcgccg	540
cctgaaagtt cgcggtattg tgaacgagcc tacggcagct tctctggcta cggctcggac	600
aagtccaata aggatatgaa gatcgctgtc ttcgactggg tggcgggtacc ttcgatatct	660
ctatcttggg attgggcgac ggcgtttcga agtgaaatcg accaacggtg atacgcacct	720
cggaggagac gacttgacca cgtgatcatt gctggctggc agaagagtca agtctcaaga	780
aggt	784

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

cagatcacga agaccagcgg gcactccctt ttgggcatag gcgatttata tcgccaagca	60
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tcgtaatggt	cctgtggatg	atgtacgttt	gcgctccgag	cgagttgcca	agttcctacc	120
tcttgaggcc	gagagcatgg	tcaaacgcat	tcccgtatcg	gaggctcacc	cgtgaaaatg	180
ggtgtcggca	acggatgttc	gccccctccc	tacctccacc	gaggacaatc	ccctcctttc	240
aggccctatt	cttcgggcac	atccgaggcc	gatttcctcg	ccgaagcatc	gggatcgaca	300
accctttctg	atattatcag	gaaacgatat	tgcataattta	tgaccaatat	acatgggtca	360
ggctcaatta	gagcctaata	tattagccat	ccttaaaaaag	cccttatggg	acaactagat	420
agggttcggg	gcaaagacga	accacgggat	atagacagat	cgaactgagg	ctaaacacgt	480
gccaaaaaag	tttcaacaac	gaagaggagt	ttggaatgat	tccaaataag	caagtgaag	540
aagtggacat	tgaagtcgaa	aagttgagga	tacggacttt	ttcaagtcaa	atatgatttt	600
tggaagagaa	gataacgac	tatatataaa	cagtttagat	aaatatatag	atcgttttcg	660
ttttgtatat	aaatcgtttt	caattttata	tagatcgaaa	gtcattttcta	gag	713

(2) INFORMATION FOR SEQ ID NO:910

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 898 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...898
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

ccagaggaaa	gcaagggttaa	agatgagcgc	aaaagcttat	gccaatatca	tcaaagggtga	60
caaagatacc	aagatgcata	tcttcgaaca	ggtaaaattg	agcttcgctg	tgctgatgct	120
ttgaatatca	actattcggc	tcgtaagaca	ccaaatagta	tccttgtaga	agaataaata	180
cccttataaa	aggctgggtat	gaggaaactc	acgacacagc	ctttttcatt	acttcactgt	240
cataagtttc	cttagcagtt	gtaagaatgt	tttttcagcc	tctgactaat	agaaaataca	300
cggaaatggg	ttttttgtgc	aaaaatcagc	ccgaaaattt	gtttgtaacg	taaaagcgga	360
taactttggc	acagaaaaag	gtttatgaca	gaatccatcc	gccccctcct	ctcatagata	420
cctctactcg	cgttttgctca	ggcgcggttg	tgctgcaggt	actattatct	cacaacgggt	480
tagccatgtg	gcaattcgca	tgctgctaac	atcggcgtat	tcgtacaaga	ggtcttgacg	540
aggcaatagg	cttaggagtg	aagccttcca	tagtagctct	aagttccgtc	ccggatcata	600
taccggacta	cgcacgggat	cgtccattgc	caaagggtat	gctttggact	cggaataccg	660
cttggtgtctg	tcctactttt	ggagttattg	ctgaggctgc	acgaccactg	tctcaacctg	720
attggttgat	ttgcctatga	tcgacgccag	acgtatggaa	gtttatacag	cactttttcga	780
ttccaaggta	aagcccttac	tgatacactg	cctttggtga	tagacaatga	ttcttttccg	840
aagaactcaa	aagcgcaata	tcttattcgt	tggtgatggt	gcgaaaagtg	tcgccccct	898

(2) INFORMATION FOR SEQ ID NO:911

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 628 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

```

cgacaggcaa tctgtttccg gcacgaagca aagatgctcc ctccgataat atcagagaga      60
gcattttcgg aacgacgttt ctgctcataa caaccggcca tgcatagtcc aacgatgcca      120
aaagctgctc cagccgatcc acacctgttg cagaggcttg tccagcatag gcttcacaaa      180
catattcagc tcggcagcag ggtaattctt agtctggat catcgggtgc agcctctttg      240
agctgatcca cacgttgaaa ggcattggag agcgttctgc ctccaatttg atcagtcgtc      300
ctgacgacgc tctactattc gcaaagtaat ctgccccacc ggatcactga tagcgtacag      360
ctatactgtt ctataccccgt cagcttaatc ttccctcggg cagtttatcc tccatcccct      420
tgagattgga gaggtccgac atttggaata gacagccgag agaggtgctg ctatactttt      480
tatttcactt tgtattctgt catactttag ggtctatata gtttgtgtac gaagtgcgtg      540
tccgaggaga aatcagatac cccacgtctc gggactcttg cgccattccg aagcagctcc      600
acattctcgg cagaaatata gcccgctc

```

(2) INFORMATION FOR SEQ ID NO:912

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 996 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

```

agtctgacgt ggctaccatt acaccacagc gcataccgca ctgctcgacg gcttagcgag      60
cacaatatac acgaatcttt ggattatggt ccagtatggt ttattagatt ctctaactctg      120
agcaattcaa aaggaaaaaa gccgcggaca gatgctttcc ctttttattc ttctccaaaa      180
tagtcactat cgagcttttc aactcataag tctgttggtg agtgcattca aggttgtaat      240
cgatcttaat tgagtttagt gttccccatc aatcaataca attttagtct cattctgggt      300
gtataagtta atgcttccct tgtaaaattt gaagttgtta taagatccct tttttggcac      360
cttgctccagc gagtgctcca acaaactttt gagctcaggt cttcctacca cattcccagg      420
cctccagcgc ttggcttgga ttaaataata tcaagtccca gtttatcttc ttttattggt      480
ccgtcaattc ctgctctcca cttttgccta atgctttacc ggcacccctg atagaacctc      540
atatccatt ttgactaata attcgacaa aagcctctca aaaaaagcgg tgaaaggta      600
atgactttat taagtaattc ggaagccaat gattttcgat tctttgatat gctttgtcaa      660
ggacctcttc aggtgtttgt tcgtgttttt ttctgttatg gattcttctt ctgtttcgcc      720
gtcatttcga taaccttctg aaattctata aacgccggaa accgtcttag gtattttgtg      780
tctatttttg gggattcttc gaaagtatct ctctgccaa gtcagaaatt atagaatcgc      840
tcgttttagg gaatcaagaa ggccagcctt ctttaggtat gtcttgccca gccaacgcga      900
ttgtcaaaaa cagcttttga gccacttgcc agagttcctg cgttcttcgt ccgtgacctc      960
aaatcggctg ccaatgttcg taatatctct ggattt

```

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1914 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:913

gcctgtatct	gttcgctgcg	tgctcctttg	agagccttgg	cgttctgagc	tgtgcagctg	60
cttcggcagc	ctttgcctgc	tccatccttag	ccgctacgcg	ggggcttcga	tgacagcgag	120
ggtatcgccg	gcctgcacct	gctgtcctcg	gataccctaa	gttccttgat	gcgcccgggc	180
actttgctgg	acactcgtat	tcggtcacctt	ctatctgtcc	ttggataatc	tcctcgcccg	240
gtctggcatg	aaaaaaccaa	cgatcgtcac	cactgcgatg	actcccagca	agagagaaac	300
gccgggaata	cgatattacg	ttgtttgttg	tccgtcataa	tgaaatatgt	ttgatcagat	360
gaataacgaa	ataaggaaaa	acggtatcat	tcgaaacgac	ttcttcgggg	gagaggtgtc	420
ccgaagcctt	gcgcagcatc	attcggtcag	tttcacgtcg	atctgtgcat	cgatccttgc	480
agaccggggc	acaaccatgc	cgtctgagct	tccagtacgt	tgagggccgt	tattacgcct	540
cgcggaacc	tacattggca	tagcgcaggt	tctcttcggc	tttcttcctg	tcttcgtggc	600
catgacaagt	cgtttgtctg	cctcccgtac	tttcaggcgc	tttgggagag	ctgtagctcg	660
atgctttcgc	gtgctttggc	aagtgtgtgg	ctgcgatgcg	tgccctggct	ttggccgctc	720
ttaccttatc	cgtgcctgcc	cccagtgcca	gataggaact	ttgagcatca	caccacatt	780
ccactacctc	cgaatttatt	ctcgaaacca	ttgaaagagg	acggattagt	cacaaatagt	840
tggcaacgaa	ggcgagcgat	ggcagatatt	ccgatcgtgt	aaccgtatct	tctgtttgga	900
gatttgctct	aacagggcga	gactccttag	tcgggacggg	tgctcagggt	gtattgcagg	960
tcggtctctg	ccggaacgat	gtcgtcggca	actcctcttg	cccttcgtct	gcgaggggtga	1020
tcgtctcgtg	aggggcagtc	ctatcgtttg	gcacagaagc	atgcgcgaga	ggctaagcca	1080
tcctctacct	tagcgagcgt	catctccgct	tcgttcacct	ttaccgaacg	ttgagaccgt	1140
cggcacgggt	agccaatccc	tccttgatga	gcttctgaca	tcgttgctga	gcttcgtcag	1200
caactccaga	tagctctcgg	caaggggtgc	ttattggcca	aagaaaccac	ttgccaatag	1260
gcctgggtcg	tagcaggatc	acatcctgct	gtccggtctt	gtgctgccag	tgtgctatct	1320
cttgcatag	cgcgatgatc	ggttgtaggc	atatatcttg	ccgcctacat	acgcgggttg	1380
gtcagggtga	gcacaccggc	atagacattg	cgggtatcgg	tcgcacggca	tcgacgaggt	1440
gtgtacgcaa	ggcgtttaag	ccctgactcg	ctgggtgggt	atctgcggca	tcattggatcc	1500
gataagggga	gccaaatcgg	atgctgggca	aggatggact	gaatagccgt	cgtgatgtag	1560
ggattctgcc	tatggctgtg	acaaggctcg	tgccgagatt	ctggagcttg	tgcttctctc	1620
gtcgtcfaat	agcgatactt	ccttctgggt	gtgcaggtaa	gtaccgtggc	cgagagctcg	1680
ggcaggtagc	tggtgaaagc	ggctttgcga	gtactgtggc	cgcatttatc	ttttcgcggc	1740
ttatggccaa	gtctctgttg	tggtgagggc	aaggcgccgc	cattcgttca	cgctcagtac	1800
tctctgtcca	tatccggcca	caaggcgcat	gccaaaacgc	ctgcgataat	caatcgtttc	1860
atcctgagtc	ttatttgtct	ctatcgcaaa	aaaggggttt	cgatcggtac	gtcc	1914

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 556 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

ggtaccctca	aaggcatagg	ggacgatgct	gccgtcatct	cattcgatga	ggcatgaaag	60
cacttgtcac	taccgatatg	ctcctcgaag	gaatccactc	gacctcactt	ataccccctct	120
caaacatttg	ggatacaaaa	gtgcgatgta	aactttctccg	acatatatgc	catgaacggc	180
acaccacggc	agctgaggtt	tccataggtg	tatcggcacg	attctcggta	gaggatatcg	240
aacagtctat	cagggtatcc	tcacggnctg	cgatgcctac	ggcgtagacc	tcgtggaggc	300
gatacttcgg	cgtcgctcac	cggattgtgt	ctgagcctga	cctcatcggg	gaggcacgag	360
aagaggaaat	agtgtatcgc	agtggagcca	aacgaccgat	ctgatctgcg	tgagcggaga	420
cctcggcgca	gcctatatgg	gctccagcta	ctggagcgtg	agaaagcggg	ctatcagggg	480
gaaaagactt	gcaccggatt	tcgccggtca	tgagtacata	ctcgaagaca	gctgaaaccg	540
aagcgcgcaa	gacatg					556

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

gggactgac	aacgacgatg	atatacctccg	gagcaaagtt	gtctactagg	ttacagactg	60
ggttgatg	atcacctgcg	actgcagaga	aacactctga	taagagctgc	gagtttattg	120
atcgccatag	ggtgtaggcc	aagctcagct	catcaataat	aatgctccga	ggtggctcag	180
gctgaagcaa	aagcgtgcaa	gacagatgaa	gcgaagcgtg	ccgtccgata	gctgataggc	240
gttgaataga	catcctccgn	cccttttttg	ttccattcta	gctggatcgt	actccattaa	300
gacgattggg	cataaggtta	aaaccctcaa	agaatggagc	aacgagcaaa	ccgtacgctc	360
tatgcgatag	aagtgccttcg	ggtgcttttg	ttgaggtaat	acaagaaagc	tgcgatattg	420
gcaccgtcac	gcctaaggct	agattgtcat	ctacacgaca	tagtgctttc	ataggggatt	480
gattcctgtg	catggaagtg	gtagatcttc	aatgcttggg	tcagttcatt	aacaaaaatag	540
cctgtcccca	attgtaatgt	taaaggagac	tcattctacat	cgcgctcaat	tcacg	595

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

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gggacggtac aggcataata tcttcttcgt ttagatgaga ggagagtaca cctccaaatc      60
gccttcgggt tgtcctccct ccacatcgtg aaaaaccaag agaggtcaat ccatggatct      120
cccgatacta tccactcgcc taaaagcacg atacgacttc atacaaagca tcggcttttt      180
catttggtga aagcaagccg ggtaggcccc tgccatacct gacgcattga agagtttcgt      240
ccacgaaagt atgtgacaag atggcctatg gaaaggtttt cagcatggac attagctctc      300
cgaaaacgat aagctcattg tcttgcgat caagtcatca ttcgcttggc attaggcgat      360
atgtacaagc agtctacagc aaatacagcg gaacaggctc cgcaaagcga gtcttttcggt      420
tcgccggact aagagcaaaa gataagataa gcaattgtgc agtcagcacc ctcaagaaca      480
tggtcagagg tagaccgtgg cgtagcctac ggccggagca tcngnggttag tc          532

```

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 571 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

```

ttcccttcgt tgagtaatag cggtatgttg tgccgtgctg caacagccgt tcatcatttc      60
gctcgatata tatgccttgg gatgcttttg acatcaagct atgaagtcga tgccgagtc      120
gccggtcaga tccaccactt tggtcctctt cttatgaaac ggcttttgta cgaactcgtg      180
acagctccgg aggattctcc aaagaaagcc gtgaaggaaat atacaaagaa ctgataccgg      240
cccacgaggg agcttggtcc tcagacgagg ccaaagttct atctgggtag ccacgcagcc      300
cgatactccg gaggaatata attgctcccc aacagaattc tgtgggtgat tggttggcat      360
agagcttaac ccatcgcgta atggcgagaa tccttttttc gcgaatagca tcgtccgtac      420
gtatactgaa agagggaacc ctcgaatgga ttccctcaga gactgtgtga ccgcgacagg      480
attcaaacct taaccggctg atccgtagtc agctactcta ttcagtgagc tacgcggcac      540
gcaaaagctg aacattgagg agaaaaagtg a          571

```

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3864 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3864

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

gacaaagcgg	tcatactatt	tggaatgcc	taggcatagc	aaggacgtcg	tcccagaaa	60
gagctttgta	tcggaagtca	tcactgaaaa	agcatcgggc	aatggtttgg	gattgatata	120
gtccacaata	attccatatt	gaaggggttt	tcataattggg	cattgagctc	taaaatgcc	180
aaatcttcga	ttacttgaca	agcttacctt	gctccggcca	cgggccttcc	gcaaaataat	240
aattcggcga	taaacttgct	gaaccaaata	acgcccaccg	acgttgattg	tggattttca	300
atgaccgttg	tcgtcccatg	agaaaagccc	tcgacggctg	tacttggttg	acgggaaggg	360
gtataacgtc	gccaacctct	gctgtgagat	caagagcagt	cgcaagccgt	cagactctac	420
aacataggcc	ttacctcctt	tctatatagg	taaaaaggct	ccatcggggg	ctcaagacct	480
gtccaatctt	atgaaccact	tgtatctctt	gagcttggtg	ttcgccctatt	tggatattct	540
ctcgacacga	tggcgggatat	acccgaaaata	cgaagggcgag	tcataactgt	tttttcaact	600
gtgtggtaat	accatgtagt	cccaagagga	taaagcagat	cggatcatcc	tgtttatcac	660
tgtttttctg	tcacaaaagg	acacatcgcc	gaggaaaaaa	acgtctcattg	ccaataagct	720
tcttctgtaa	aaattttttt	catactgcaa	tcattttattt	tcacaaattc	ggattcatta	780
atataaccac	ggctaagata	caaattttatc	gggggtgcata	ttccccctcgc	acaatgcaat	840
aggagggaga	tgcaaaaggca	agacgcgaga	agctcgacac	ataaaaagcg	gctctgcttg	900
ggacggacat	atctctcata	cggtgccgctt	ctcttacaga	gcccgttggt	tcaatttgga	960
atcaaagcca	taagtggctc	gattatttca	attagtccaa	agacccacgg	taaaagttgaa	1020
gcccacatgc	cgatgtggtt	catgcgagga	gatagtgtcg	aaagcgggctt	atttccatca	1080
gcttgaaatt	acgatacggg	tatagcaggt	tcagatactc	atagcccggc	tgaaccggag	1140
gcgaaaatca	tatttgctct	tgatgggcat	tttccacaaa	tagaactttt	gagtccgatc	1200
cccggtgaaa	agccattgct	cactgggcaa	catcttcgga	ctgaagtaca	aggtcactgc	1260
cagctcttgt	gtagtgtcat	agtggacctt	gctcttggtg	atcggtgaga	aaagaatatg	1320
ggctcatttg	tccatcccca	atacgctccc	agatgcttgg	tataggatat	cccaaactga	1380
tgaggaagcg	cccgagagct	tttttgtaaa	aaaagtcttc	tcgtcttcga	agactattac	1440
cttttcaaca	ataccaatga	tacttgggac	ttcgtataca	tgagcttcgg	acttccggcc	1500
tcttcccagt	gtgctcttct	tcattgtattc	ctaccgaaaa	atccaaccct	tcgggcagaa	1560
tgctgtgggt	accctcatcc	gtatgctcat	gtccatgcgg	aagatattgc	caccaaacca	1620
tttccggccg	tggccgaact	gaaagtggta	gctgcctcaa	tgctctgata	tttaacttcg	1680
attgggcatt	ggccgagaga	cccaaaaaca	ggagtaagca	catatcgatc	ctgtcaaagt	1740
agtttttttc	atttcagtga	tttttttgtg	ttatcgattc	taaatgggag	qgaaggtatc	1800
aaattattaa	atgttgacgg	agccggattt	ggaggaanaa	atTTTTTTTct	tgcagttttc	1860
tcttttctcg	ggcgtgtttt	ctggattgta	cgaagaataa	cctacatttg	cctcgacaga	1920
ccgctacggg	ggtgcttgcc	ggcaagaatt	gcgatacggc	ggctgagata	ataccatag	1980
acctgatccg	gataataccg	gcggagggag	tagaatcgaa	tacacactat	gcgtgccagc	2040
agcttcggga	gaagcaccca	ttgtggacgg	tcaaccacat	gtgaaagaac	agatattatc	2100
cctcaaagca	cgcaaatgca	agttactatc	aacaaccaac	cgatcacatg	cctcgaggta	2160
tgggactggc	tgccctcttg	gaagccgagc	ggatccaagt	ggagccacgg	ccatagccgt	2220
aaacggagaa	gtcgtacccc	gtgcctcgtg	gccgacttcc	gtctgtccga	aggcgatgag	2280
atcctgatca	tccaagccac	ctagggggct	gaccgacgta	ccttcagctt	caaggcgata	2340
gtctcaaaa	agaaaaaccc	aaacccatta	cccgaattgat	atgaaagaat	tcaaagtgac	2400
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gcgtaccgat	gcggcgcatc	cgaatgtccg	acaccatatt	gagaacggcg	aacgtgagaa	2520
aaacgaagat	gtagtctgat	acgataccgt	ggccccataa	ccgatacctc	ctatgagggtg	2580
aatctgcacc	gaggcgctcg	aagatacggc	agcagtggat	agaggatcgg	ggcgatacgg	2640
tgcggccgaa	gggctcagct	ccgaatacgg	acggataagg	cagtcggacg	cttcgtcgaa	2700
aagctgcgtt	acgagcatgt	gtgcacgcgt	ccccgtgccg	ccaagacggc	tgtgccacgc	2760
agctctacta	cgcccgtcag	gggatcgtga	cgggagatg	gagttcgtgg	ccatcccgga	2820
aaatcagttg	atcgatcagg	tcggacgcgc	tatcgcgctg	aggaggggtg	gccgctcgga	2880
gctgttatte	ccgcaagatc	acgcccgaat	ttgtacgcga	cgagattgcc	gccggacggg	2940
tatccttccg	gccaatatca	atcatccgga	aagtgagccg	atgatcatcg	gcgcaatttc	3000
ctcgtcaaga	tcaatgcgaa	cataggcaat	tcgcccatag	cagtaccatc	gaggaagagg	3060
tggaaaaggc	cgtctggggc	atacgctggg	tgccgatacg	gtcatggatc	tctccacggg	3120
ggatcatata	catgagcgcg	cgagtggatc	atcccgaatt	cggccgtgcc	catcggcact	3180
gtgccctcta	ccagacgcgtg	gagaagggtg	agggcgatgt	gacgaagctc	aactggagat	3240
attccgcgat	acgtctcatcg	agcaggccga	gcagggtgtg	gacacttcac	catccacgcc	3300
ggctctcggt	ggcaccacgt	gcctctgacc	ttcgccgcct	cacggggatc	gtctcccgcg	3360
gtggttccat	catcgccaac	tgtgcaccac	ccacaagcgc	gaaagtttca	tctacgagca	3420
tttcgaagag	tctgccaat	cctcgcacgc	tacgacgtag	ccatatctct	cggcgatggg	3480

tgcgccccggg	ctgcatccac	gacgccaacg	atgctgcgca	gatagctggc	tgaagacgct	3540
ggcggaactt	accgagatcg	cttggaagta	taacgtgaaa	ccattatcga	aggaccggga	3600
cacgtgcccc	tgcacaagat	ccgcgaaata	tggagattca	actcgaagcc	tgccatggcg	3660
cacccttcta	cactccggcc	cgttggtcag	cgacgtggcg	tccggctacg	accatatac	3720
atcgctatcg	gcgcggcaca	gatcggatgg	ttcggcacag	ccatgctctg	ctagtgaacg	3780
aaaaggagca	tttgggtctg	cccaaccgcg	aagatgtacg	tgaggtgtag	taacctatag	3840
actggctgct	catgccggcg	ggga				3864

(2) INFORMATION FOR SEQ ID NO:919

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

tttgtctca	aattcgacgt	tttatccctt	tggcctgac	aaccagattt	agcctactat	60
ggccgggaag	aaggtgctct	aaagcgggat	tggcgagaca	ggcatcttc	acagcagccc	120
gtgagatgga	taggcaaacg	cttgagcaga	agaagagaaa	gagggtttgc	ccaagacgaa	180
tgccgaggat	tatcagtctg	gatcaagctc	gactttaccg	acttggccat	atccgtattc	240
atcaagagca	gagaaagaca	tcagctaagg	atatgcagcg	gaaagaggct	actacctcag	300
tgatatgttg	gatatgtatt	ggancaatat	ccctccgagg	gagaaatagg	agataaggat	360
acggagcaaa	cgagaagcac	tattcgtgaa	acaacagaaa	gaagagaccc	atccaggatc	420
tctacctctc	ctgtgcccaa	gggataaaga	tttgacggag	tctcattata	tccatttggg	480
cacgctggac	atgaaaagcaa	gactacggcg	aggattgcag	cctatccggt	gaagaacggg	540
ttatcgataa	agagcgggtg	cgagaagtat	cgactcgtcc	ctacaaaactc	tttccgtcaa	600
taaaaatctg	gctactgcaa	aacagatctt	tatttccatt	ccaaagagga	tcagactgaa	660
ctggagacct	gtctgcaatt	tttcaaccct	tggagaagaa	tggtcagatc	gagatctact	720
atgataagtt	gactagtttg	aaacacctat	tcaccctgaa	ataagaaagc	gtattgtcga	780
agccactgta	taatcgcttt	gacagccaa	cgctatctgg	ccacggatta	catctggatc	840
atgagttgcc	tgtatttcgg	gagtataaca	agaccatagt	gcgatattga	tcaagccttg	900
tacattcgaa	gaccatgagt	tccttcggag	atatttgctc	agaaagctca	aataatcaat	960
cttgaag						968

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

gatctccctc	gaatcgatca	atagtcgtgc	atagccacgc	gtgcaaacaa	aaagagcatg	60
gattcgaaca	ggaacggcgt	agccacagct	gcagccggag	ggatcgcttg	tcattgcaca	120
gcaagaccgc	gtctccaagc	gtattcattt	accccccaag	tatcctgcaa	gctcattgat	180
cgagaatacc	tttagcgaat	agtcataaaa	gagaatttag	agataggaaa	ctgcatcgaa	240
tccattgccc	gtcgcgacgg	caaacatccg	agactgttta	gtaccgatac	cggtgtataa	300
cgtacgagag	catggctccg	gctcttccca	ttccggagca	aaaccattcc	ctctttcaat	360
agcgtcgctt	gccgaagatc	gtagtccoga	tagaacgatg	gtgcttcctt	cttcgatggc	420
cagctcgaaa	tcgcccgtca	tcccatcgaa	agctcacaaa	aatcagcaga	atcggagaag	480
aaacgctctt	catctctctg	aacagcgatg	ccaaccggcg	aaactctctg	cgaatctgcc	540
cctatcgctc	gtaaatgtag	ccatccscat	cagaccggca	atcttgaccc	ggtatcggag	600
ccgcgtgcca	aaacagcctc	cagaacttgt	ggcaattctc	cggcgtaaa	ccgcttttg	660
tatcctccga	tgcgatatgc	acttccataa	aaccgg			696

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2843 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

tgggtacggg	caagaccact	ttcatcaaa	ccgatgcca	ggagctgggg	tctcggacgt	60
tatcaatagt	cccacctttt	cgattatcaa	cgagtaccct	cggtacgagc	gggcgaactg	120
atctatcact	tcgactgcta	ccggctcaca	agatagaaga	cgccctgaat	ctgggtgtag	180
aagactattt	cgatagggtg	gtctctgctt	tatcgaatgg	ccggagcttc	tggagccgat	240
actccgaacg	atacgggtca	tgccgaatc	gaagagctgg	aagacggcaa	gcgcggctta	300
cattctaata	cctgctccga	tgctggtcgt	cattcgggac	ttcatctcat	cctctttgcc	360
atagtcgggc	tggtttcgct	actgactgct	ctctctgtcc	ggattggcta	ctgagcagcc	420
gaggcgcacg	catttggtatc	atgccttcgg	caagcgaggc	gcacgtatct	tctatattat	480
aataggagtg	ccttgctgag	tgctgcggtc	ttcgggctga	tcaaactctg	aaaagtgtct	540
gcagtataat	cgatcatata	aaagagaccg	cccctgctca	gcctcatttc	gtatattcct	600
tataacctct	tcaaggggaa	acctctacct	ttacgggtga	atcaatttca	gaccgatgga	660
ttacgaaata	gagaacaacc	atgccgcagt	attcgcaggg	gaagtatcga	agtgatatgc	720
ggctccatgt	tcagtgcgaag	acggaagagc	tgctacgccg	tctgcggaga	gctaagatag	780
cgcgacagcg	gtggagatat	tcaagccgac	catcgatata	cgctacgacg	aaaggatgtc	840
gtttcgcatg	acaagaatgc	tatcgcttcc	acccccgtgg	acattcggcc	aatatactgc	900
tgctatccct	ccaagtggat	gtggtgggga	tgacgaagcc	cagttctttg	atgagggtct	960
tgtggaagta	gcccagcaat	ggccgatcag	ggtgttcgcg	ttgtgatcgc	cggattggac	1020
atggactttg	acgtcagcct	ttcggacctc	tgccgggctt	gtgtgccata	gccgactcgt	1080
gaccaaagtt	catgccgtgt	gtgtggaatg	cggccgattg	gccagctttc	tttccgtcgt	1140
gtccaaggcg	atcagcaagt	gatgctgggc	gaactgacga	atacagtcct	ctctgcagaa	1200
cctgctacag	gaaatgcagt	tctccccaca	aacagaagaa	atccattcga	caatatgaat	1260
agcagacatc	tgacatcaca	atcattgccc	gcctctccct	ctttgtactg	acattgggcg	1320
gctctccgta	gcccacaacg	atcgcagtg	gactctcggc	ggaaagctct	ttcttcggcg	1380
tggatacaac	gttcggccga	atatcaagcg	ctttgcattc	agcatacaac	atcgctacgg	1440
aaagagtggg	cgctctaccg	gcagaacgta	acaaggagat	aggccttatg	ccatcgtaac	1500

ggacatagac	gaaaccattt	ggacaatacg	cctaactcgg	tgtatcaggc	tctcaggggc	1560
aaggattaga	tgaagagact	tgggggaaat	ggtgtgcaca	ggccgatgcc	gacacacggc	1620
aggagctttg	tctttcttcc	tccatgcagc	gaacaagggg	atcgagtctt	ttacgtcacc	1680
aaccgcagag	acaatctgcg	cgaagcaact	cttcaaacct	tcagcggtac	ggattcccct	1740
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caaaatacaa	gaaagtatga	aatagtattg	ctcataggag	acaacttggg	cgacttccac	1860
cattcttcaa	tacgaaagaa	gagtcgggac	gcaaacaggc	tctgggcctg	aagccgggga	1920
gtttggccgg	cacttcatca	tgctgcccac	tcccaactac	gatcttggga	accggcatgg	1980
tacggcggga	agtatccgcc	actgcccga	gagacaaagc	acttaaaca	ctgcactcac	2040
agaacagcag	atagctccta	agcaaacaca	tcgaatagac	agactcacac	tatggacaac	2100
aaacgacaag	caaaatagaa	agactgctcc	agaaagaact	cagcgagata	ttcctgggga	2160
tgcgaaatcc	ctgccggggc	taatagtttc	ggtaacgaac	gtacggtaag	tcccgcacct	2220
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gcatcaaaaca	caatacaaa	acgtccgtta	tgacctcggg	cagcaagttc	gtacccaact	2340
gcgcaagata	ccgatttgac	attctacata	gatgactctc	tggattatct	ggagaatata	2400
gccgtttgct	caatcaataa	gaaacggtcg	ctctctatca	agacgctgtg	acttcccttt	2460
tttcatagcc	cgccgttact	tgttctccc	caaaagatta	gtgcgggtcaa	tgtgggttcg	2520
ctcgtttcag	cgatagctgt	ctgcgtggct	cttcggcctt	ggtttgtatc	ctctctatct	2580
tcaatgggta	cgaagcttga	tcatgacgca	ttcggcagta	acggatcccc	ctcttatgat	2640
tcgttcgcag	acaattcgc	gataaaggca	gatgataaaa	ctctgctcac	agctccgaag	2700
cggaagggat	cggttcgtac	agctttatcc	tcaccggaga	aggtttgtaa	agacgaagta	2760
tcgacagcag	gctgtttctc	tcattgggtgt	ggagatcgct	atccccgcac	tgtgaagata	2820
gactccatcg	tctttgcagg	caa				2843

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 568 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

aaaccgaaaa	gtttacgcgc	cacgtttttc	ggtactgcca	atgatctttt	tttcgcgcgt	60
aaatgccaaa	gactgtcggc	ttcgaggtac	agatcgaatc	ggatcgctct	ttcggagctg	120
acagtctttc	ttctccgaga	agaaaaagga	acctgtggga	gtcgctcacc	atgggttttc	180
ttgctatttt	tgttcgatcc	ggattccatc	ctaagaggac	gaccaacctc	tgattgcact	240
cttaaaatcg	tatacatgct	gatgacggct	gccgtcagtg	ctgtcattat	cagcagaatc	300
gcaatccact	gaaggctact	tcgtggatcc	tggctcgtct	tttgtaccgc	tcttggggct	360
tattgtctat	atctttttcg	gacaggatca	gccagacggc	gtattgtcag	ccgccgtata	420
tacaagcgca	tcattgctgaa	gctcactatc	tgtccatccc	cgaagcacag	ttggaagcca	480
tgaacaatat	cagctgaatc	ccatcatgaa	gctgatcaac	aacaactcgg	acagccccgc	540
atgctcagct	cgccgcggga	tatattca				568

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1433 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1433
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

atgtcttcga	ccgtggcccc	ggaagcacat	atcatcatgg	atacccttat	gaagtatcat	60
catttcgata	tacagtgggg	caatcatgac	atgctgtgat	ggaagctgct	gtgggcaatg	120
cctcctgtat	ggccaatgtg	gtgcgtaagc	actgcgctat	gccaatttgg	atacgctgga	180
gagcgggtac	ggtatcacct	tttgcccttg	gcgcgttttg	ccatggacac	ttatgcggtg	240
gatacctgtac	cgtattttaa	cccaaactgg	ctcaggccga	ccagacgtat	gatgcaagag	300
cgtctatctg	atcagtcaga	tgcacaaagc	catatctatc	attagttcaa	gctggagcac	360
cagatcatag	cccgtcatcc	ggagtacaag	atgacaatcg	ggatttggtc	catctggtga	420
acttcaccga	tggatccatc	agctgtcgag	tggcgatat	ccgatgttgg	atatgaattt	480
cccgaccgtg	atccggccga	tccgtatgca	ctgacagagc	aagagcagaa	tatcgtagac	540
gtctgatggg	ctgttttatg	cggagtgaag	agctgcaaaa	ccatctcaat	gcctctatcg	600
tcatggcagt	atgtacctga	cgtataatat	gaatctgtct	accatgcttc	tatccctctg	660
aacaaggata	agtcgctcaa	gaaggctggg	taggggacaa	gacctatgcc	ggacgcgaat	720
tgctcgataa	ggtggagaga	tgatccgtac	cgcatatgtg	gctcccgaga	aaagcgatca	780
gagattgcgg	ctgtggacta	catgtgggtc	ctctggtgcg	gaccggattc	tcccttttcg	840
acaaagctat	gatgactact	tccgagcggt	acttcacoga	agtaaggcta	cgcacatcatga	900
ggaaaagggt	tactactacg	tctatcgctc	gagaaagccg	tttgtgagat	gatacctcaaa	960
gagtttgggc	ttgaaggccc	gatacgcata	taatcaacgg	gcacgttccg	gtgaaggcca	1020
agaaaggggg	cttcctatcg	gagctgaagg	caaactgatg	ttgatagatg	gcggattcgc	1080
aaggcatatc	agtcaagtac	ggggatcgcc	ggctatacgc	tgatattaac	tctcagggat	1140
tgcatcttgt	gcagcacgaa	ccgttttagt	ccacaccaag	gctatcgaag	agatggagga	1200
catcaagagt	atcacggtgg	tacgtaggtc	acatcccatc	gtatgctggt	gaaggatacg	1260
gacaatggcc	actcttgagc	aagcagggtg	aaaacctcaa	aaaactcctt	caggcggtaca	1320
gctcggactg	atcaaggaac	gaaaaaata	gcgtggtgta	agagacagga	gtgctttaat	1380
ctcggattat	ggcggacgga	tatgtattcg	ccttcgtctc	catgccattt	gct	1433

(2) INFORMATION FOR SEQ ID NO:924

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 786 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...786
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

gcttcttgaa	tgccctccaaa	gcctccggct	tgctactgtc	tatccagcag	ctttgtacag	60
gctgatcggt	tcccaacgac	actgcgtccc	gtattcatca	gcagacggta	ttggatcact	120
tcgaactgta	gctgccccac	ggtcccgtaa	tcttgcgccc	ggtgaactga	ttgggtgaata	180
gctgtgccac	cccttcccca	tgagctggtc	gatccctttg	gccagttgct	tggctttcat	240

cggatctgat	tttcaatgta	cttgaatagc	tccggcgaga	agcttggcaa	accgggaaat	300
gaagctcttc	gccggctgtc	agcgtatctc	caatctgaaa	attccggtat	cgggcagacc	360
gataatatca	ccggcatagg	cttcatccac	cgctccttgc	gctgcgccat	aaaagccgta	420
ggactgctga	atcggaactg	ttgccgaggc	ggatatgctt	gtagttcgta	tttcgttcga	480
accgaccgga	caaatcttga	cgaagcaat	acagctgcga	tggttgggat	ccatgttggga	540
tgtatcttga	aaacaaaacc	cgtaaattcc	tcctcgtgcg	gatccacttc	ctctccactg	600
cagccaccgg	ctggggagaa	ggggcaatct	cgacgaacag	ttcagcagct	cctgcacacc	660
gaagttgttg	agtgccgaac	cgaaaacacc	ggagcaagct	gtccggccag	atattcctct	720
ttgtcgaaag	gctgaaaaca	ccatcgatca	attcgatgtc	cgnacgcaac	ttctcagctt	780
gagttc						786

(2) INFORMATION FOR SEQ ID NO:925

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 581 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

ggtggccgaa	taacatctgc	cgaaaaaaac	actgtgccca	agtgcactcg	tatgcttccg	60
ggacagtaca	ttggaaaacg	aggctcaaag	gtacatcttt	cgatggcttc	ggcatagtgt	120
tcgttgatca	ctcgcctttt	gagtttctcg	tctcggtcag	ttcgcccttc	tccagtgtaa	180
aaggctcggc	gaggaggtaa	tgtacttcac	cttctcgtaa	gcagcaagcg	aatcttgtgc	240
agccttattc	tggccatcat	caggcggttg	atttcaggat	ttgcagccat	ctcgccacag	300
acattgtccg	ggcctgttca	agtccccttt	tgatggcagc	ctgcttacca	attcccaatt	360
cggatagacc	aaggcactca	catacttgaa	ccgtcaccta	tcaccgctat	ctgttcgatg	420
atgggatact	tggtcagcat	ccctcgatca	tctgcggagc	tatgtacttt	ccgttggcag	480
tcttgtacag	tcttttatcc	tctccagaaa	ataaagcggt	ccatccggat	ccatgcgttg	540
gcattcgcgc	tacggaaata	gccgtcaggc	gtgaaggctt	c		581

(2) INFORMATION FOR SEQ ID NO:926

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

gaataatggtt	attaaagggtt	gataattcag	tatcaactga	ccggatgata	tcgatagata	60
taattgaata	atagaaaaatc	tgaagaaaaa	atccgcttat	atcgacacaa	caatggagga	120
gaatcttttt	atgtaagcca	tgctttgcct	aatagcatga	gtatgagggtg	gaagtggcaa	180
aaaaaacaaa	atcggcaaaag	agagggaaac	agctctcttt	ggccgatttt	gtcttttcgg	240
taataaacaa	agtcttttta	tagaccgtgc	tcgccccaaat	aacgctctgc	ttcgtagcag	300
ccttgcaacc	tgatccggca	gccgtgatag	cctgacgata	gtggggtcgg	caacgtcgcc	360
ggcagcaaat	acgcggggaa	cttttggtgcg	cgggacgaac	cttcgcgtcag	gatataaccc	420
acttcgtcca	agtcgaggta	gcggcggaaga	tcttcgagtt	tggcgtatga	ccgatagcga	480
ggaaaaaac	tcgatggcaa	tgctccaccat	ctcttcgtcc	ggctctcctt	tgcgtttcac	540
agatgagcac	cttccacacc	gttttcgccc	aatagacca	cggatttagt	tcgaagagaa	600
cggttatggt	cgcggtatcc	atcacacgct	cctgcatacc	ttggaggcac	ggagatagtt	660
cttgcgtagc	atcaggtaca	cgtgttagcc	agcgatgcca	gatagagagc	ctcctcgcaa	720
gcagtatcac	ctccgccact	acggctactt	tcttcttgcg	atagaaaaat	ccatcacagg	780
tagccaagca	gaaacaccca	tgccggcata	tttggcttca	tcggccaagc	ctagtatttg	840
gctgtggcac	ccgtggagat	aataagcgta	tcggctgtga	ttccttttct	ccgtctatcg	900
tgatcctgta	aggagccttg	ctcaaaccg	ctttgtagcc	gatacccgaa	cgaatgtccg	960
ttccgaagcg						970

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1332 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1332

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

tttataaaaa	tgagacagca	tttatctcta	tttcttttta	tcttgtttcg	cttcttgcct	60
tctcttatgt	cggttgcaga	acagtcgcac	aaacacctag	cagtcggaac	ggtacgtcgt	120
agtcctgtct	ttggacggct	tccgaccgac	tataccgatc	gggcacgtac	accggcggtg	180
gatcggatgg	cacaggggga	ttgagcgggt	cgctccaaac	atgcttcccc	tcgcttacat	240
ttcccatcat	tacagcatgg	ctacggggct	ttaccccgat	catcacggta	tcgtgccaat	300
gagtttgtgg	attcgctact	gggcatcttt	cgtatatccg	accaaagcc	gtggagaccc	360
ccggattttg	gggcggcgag	ccggtttgga	atcggccgca	cgccaaggca	tccgtaccgg	420
tgtctacttt	tgggtaggat	cgaaacggct	gtgaacggaa	atcggccgtg	gcggtggaaa	480
aaattctctt	caccgttccg	tttcgtgacc	gtgccgactc	cgtcatcgcg	tggctcggat	540
gcccgaagag	gagcgaccgc	gcttgctcat	gtggtacatc	gaggagccga	tatgatcgga	600
cacagccaaa	cgcccgaag	cccgtgaca	ctggcaaggt	agagcgggtg	gacagtgtgg	660
tcggctattt	ccgcaagcgg	ttggacctct	gcccatagcc	gcacagaccg	acttcatcat	720
agtatccgat	cacggatggc	cacgtacgaa	aatgagaaat	gtgtcaatct	gtcgcattat	780
ctgctgcgga	cagtttcttc	tacatggcca	ccggggcctt	cacccacttg	taccgaagcc	840
ctcctatacc	gagcgagcct	atgagatcct	gcggggccatt	cccatatctc	ggtttaccgc	900
aagggggagg	tgcccaagcg	tttgcgctgt	gcaccaatcc	tcgtttgggc	gaactggctg	960
tgattccgga	cataggctcc	ccgtcttttt	gcgaataaat	gaagacgttc	gtccgggagc	1020
ggcacatggt	atgacaacca	agcaccggaa	atgcgggctt	tactccgggc	tgtcggaccg	1080
atttccgtcc	gggcagtagg	gtggaaaacc	tgccgaatat	caccatcatc	cgctcatatg	1140
caggctgttg	ggtatagagc	ctgcacccaa	cgatgcgacg	aaacgttgct	gaacggcctg	1200
atccgagaca	aacgaccatg	atcatgcaag	ggaaaaacgg	cgcaacaata	tcgccgagta	1260
cgtcctctac	atgtgcagat	agaggatctt	atacgtgcca	acgactgga	tatgcagcgg	1320
cttgcgccac	tg					1332

(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

gctccttgcg	agcattctcg	tgtttggctc	gatggcattc	gccaagtcc	caaaggaaat	60
gacaagtcta	aagacgaaca	catccttacg	tgggcgttcc	ggaagagttg	gtgatcgata	120
ataacagtat	tgtagctact	tataattttt	attgactcca	tttaatggaa	tgaccatggc	180
ctgcgcttct	ttcttcatgt	gcaggatttg	ttgccttatg	tgggctatac	gatcaataga	240
atagattcca	ccctacggca	gatgagaaga	actatgagca	ggtggcagcc	agcagttcta	300
catctgtata	tggggcaata	aggaacagac	agaagtcctg	tacagcaggc	tctgcccacg	360
atccacaagg	aggatttgag	ctttggctat	gggtggacgg	cgaggaagac	tattacgatg	420
agccgatgta	ccttgccgaa	cggaaacgcc	ctt			453

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

caaaccggcc	accacattgc	ccatcatacg	gaagtgahta	tgcgcccacg	accgagcctg	60
ttgcccagat	aatagcgatc	ggccacattc	ataccgccaa	atagcctatt	ttaccatcta	120
taacggctac	cttcgggtga	ttgcgggtgt	tacgcggctg	gacagtatgg	ggaagaagac	180
cggcataaaa	ggatagcttc	cactccggct	cggcgcagtc	gtttccagta	gccacggccc	240
gtagccacga	acccacatga	tcgaatatga	ccctcacctt	caagccctct	tgcacttgcg	300
tataagcaga	tccgacaggc	gactgcccag	atggtcatcc	tcttgacgta	gaactgaata	360
tgcacatggt	ggcgggcagc	ctctatgtcg	cgaag			395

(2) INFORMATION FOR SEQ ID NO:930

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

aaggccgacg	tgtgctgaaa	anggccggaa	gtcgganagg	ttaatccgac	cttgtggtat	60
agaaagagtc	ggtattgtac	cggactcttt	cgggtttatc	ttgccttaat	tctatcgttg	120
tatgaccaat	ccgggggttaa	agagccataa	tcaccaaact	attcgacgag	gatttcggga	180
tgccacgatg	atgaagcagg	ataataaagc	aatcggggca	acatcggaga	gagagaaaac	240
ctctcccatg	ctgccccgat	ctgtttgtta	gtactcgcgc	gtcgttattg	aacgtcactc	300
tttctgtaat	atcaccgatc	tgcaagagga	aaacgccctt	gagtggctga	tatctatctg	360
ctggaagatg	ttattaagcg	taactctgta	aaaatctgtc	cgttcatatc	tataagagat	420
gccactttgc	ctaccatttc	tccggatatc	ctatcgtcaa	atcttttgat	gtgggtatgg	480
gatagacatg	aagcctttgg	tgtcgacttc	tctacggca	ttgctcttct	tcatacagggt	540
gtcactttctg	tatctttctc	aagaaggaaat	tcatacggag	cttcgatatc	tctccgttca	600
ccattacctt	gtccacttcg	taaccttcgg	cagggatgga	tgtattttaa	tacgacggcc	660
tgccactaat	gtggaaccgc	tgttcagggc	tgcccatcgg	ccgttagctt	tatctctcca	720
ttttcgggct	ggatgccact	acggaatata	cagagatagg	ttcataaate	gcttccactt	780
cattgtagat	tctttgacta	ctacatgagt	ataactgttt	ttgaagggta	gtctgaaaaa	840
tccacataat	ctttaagtcc	gaaatatact	aaatctgcta	tgaaggcttt	gggaagaatg	900
tctctgaagc	gagcatttct	ttgtcgtact	ctagtagtac	cagaaatcgt	cacgcccggc	960
tttgacaata	tccattcctt	actgtcgtat	tcgatatatca	attcaaattc	gttcaaacct	1020
gtactggccg	ggatc					1035

(2) INFORMATION FOR SEQ ID NO:931

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3390 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

tgccgggttca	tgcttgcaat	cgatcaggac	aagagactgg	aaagctgctg	cgacagagga	60
tgtacgtctc	gatgatcctg	cgcaaggatt	ccctgttgac	gcaaccaaac	gggcatatcc	120
gtagccgggc	aaatcgacca	gataccagaa	togtgcagta	taaaatgggt	gatcagctgc	180
gttttgcccc	gcttttgagg	gtcatggcca	gtcccttttg	gccggtaagc	atattgatca	240

gagagatttg	cccacattcg	aacggccgat	gaaagcatat	tccggggagcc	tccgttcagga	300
catttgcgca	catcggtatt	actgattaca	aatgccgcct	ttttatttcc	attcggttct	360
gtcgttattt	atatacggat	agccgtacaa	tattatatct	ttgtgacata	caaagatagc	420
ttttttttac	cggttaagcc	taattagaat	atgaacaaat	cgcttataat	tcttatctat	480
accctcgttt	ggttttgctc	atcgctctgc	aaagtctggc	attggagagc	gccaaccccg	540
cacccccctc	ttttggaata	cgccctccgc	ttattattcc	gtatggatgt	tgatgcctat	600
atcatagccc	tgtactatat	caattatttt	ctgatagccc	attcatgata	aagaggcacc	660
tctttcgtcc	ctatatcggt	ctgtcgtggc	cttgggcgga	ataggcatgt	tgcttcccgt	720
cgtcttccac	cacgctggca	atggactgta	ccgggcacgt	ccgaaggaca	gatgcctctt	780
tacgggaagg	cttcacgcgc	tccatagcgg	ccatagccgt	agggctgtcc	gtcgcggagt	840
ccgcgagtgg	gtgcgtctgg	ctcgtcggaa	taccaatctg	gaatagcact	caagaacaag	900
tccatcgcat	acgatcgtgc	cgaagcgcgg	cgcgttcttt	ggaacagccg	gtttctttcc	960
acaacccccg	cacgggagcg	aagcggaaaa	cgcaccttcc	tctactcctg	tcagtcacac	1020
aacaaacgat	agtcattgca	aagaaaacgt	ccaatcccta	ctacaaagtc	agcaggcgaa	1080
gttcagcaaa	cgaaattccg	gacgcagata	ttcgagaaaag	aggagaaaaa	cggacggcga	1140
cgagggctga	tgatcagcct	gctcctcctt	gtcgcctcgg	tatctggata	gccaagcgat	1200
acagggcttg	gttcgtttct	ccggcgaagt	cgcctacacc	gtaccgcata	cgatagacag	1260
gctcacctcg	acacgggtga	ggatttcctt	acccaaagga	cggtcagctg	gcggtgcgac	1320
acctgccgca	agactcttgg	ctggactatc	gctctccgga	cggagcggat	gcgataccct	1380
gctgatctcg	ctgccggccg	agggaaaaga	agtcgtcacc	ctgccggacg	caactactat	1440
taccacgcta	agataaacgg	actcaagccc	cccgcaccta	tacctacagg	gtcaagacgg	1500
gagagcagac	atcgccctgt	accgattctc	cattcccgac	agttcggctg	ctaccgactt	1560
catctatacg	gggacgttca	ggatccgggc	aacggaggca	gtcaggctct	gctccaagac	1620
tgcgcaccct	gcatcccaac	cccgattttc	tggctttggg	tggcgacaga	tcgaaggccc	1680
cacggatttc	tattgggaag	tatggcatcg	tgtcaaggcg	actggacggc	atcgacaccc	1740
gtcatcgccg	ctaccggcaa	ccacagtata	tcaaaggact	gaaaagacag	ctcgatcccc	1800
gttgggtacc	tcatacaact	atccggccaa	tggctccaaa	ggcttcgagc	ggcgttcgta	1860
ctcatagact	tcccccatat	gcggctcatc	gtcatggaca	ccaacgacat	caatggccgg	1920
catccgtatt	caaccaccgc	acgtggttga	aaaacgcact	gaaaccaccg	tacagccgtg	1980
gaaggtggtc	atgttccacc	acggagtgtt	tccgtgcggc	agggacgcat	gaacccgatc	2040
atccgctacg	gcttccgccc	attctggagg	aaggcgggtg	cgacctcgtc	ctgcaaggac	2100
acgatcagcc	tactcccgtg	tcaccaccaa	gacggagtcc	ggcacgaaga	cgacaccgta	2160
tatatcatca	gcagcgcata	gcccgaagc	tacggcaacg	gattcccag	cagcacgaca	2220
ggatcggtc	ggcctctac	ctctatcaga	ccatcacgtc	acgcaggag	agatccgcta	2280
ccgctccacc	accttcgaca	atccccgtac	gacgacctgc	acctgaagaa	gcaggagggc	2340
cgaaccacag	tcaggacaat	gccgaggact	ggaaagagat	cttcgctttc	gacaactttg	2400
cgacagcaaa	aaaggccgta	aaaagcgtgc	cgactatcgg	caggcagccc	agaacgagca	2460
gccggacatc	ggtaagcggg	cgatcgggtg	cgcgtaaaa	agatcgaaaa	cgaacgaaca	2520
gccacactgc	caacaacttt	tcactacctc	gttgccgtaa	cgacagaata	gaaacataga	2580
cgatcctcgg	tcgaaagtgc	cgcggtcgtc	gattcttcga	ttactaaca	aacaatgaaa	2640
aaagaaacct	tatgcgtagt	ggctttgcca	cacgtgccat	ccatggaggc	gctatgagaa	2700
cgcttccggc	tgetttagcca	ctcccattta	ccaaacatcg	acttcgtttt	tgacactgcc	2760
gaacagggag	gccgcgcgtt	tgccggagag	gaaacggata	catctatacc	cgtctgggca	2820
accccaactg	cacccaagtg	gagagaaaact	ggccatgctc	gaaggcggag	aagccgccgc	2880
atcggcctca	tcgggtatcg	agccatcagc	tctgccatct	gggtatgcgt	gaaggccggc	2940
accatatcgt	agccggcaag	acgctctacg	cgctgcacct	cgcttcccta	cccacggact	3000
gagccgctac	ggtgtggaag	tcaccctcgt	ggataccccc	atccggaaga	ggtggaggcc	3060
gccattcgcc	cgaatacgaa	gctcgtcatc	tggagactcc	ggccaacccc	aatatgtacc	3120
tgaccgacat	caaggcgtct	gcgacatcgc	tcataagcac	gaaggcgta	gcgtcatggt	3180
ggacatacct	actgcacgcc	ctatatctgc	cgtccgctgg	agctgggtgc	cgactcgtgg	3240
tacacagcgc	gaccaagtac	ctgaacggac	atggcgacgt	catgccggat	tcgtcgtagg	3300
taaagaggac	tacatcaagg	aggtgaagct	cgcggcgtca	aggacctcac	gggggccaat	3360
atgagtcctg	tcgatgctta	ttgatcagcc				3390

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2199 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2199

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

```

gagaaaaggcc tcgcgctttg atttcgatcc gtcgaacttt cttaaagtagt cgcttgtctg      60
cacttatctc tgattaaggg acttctactt tgttcagggtc tcattgacga cagcatccgg      120
agtcaaaacta ttagcctctg cctcatactg agtccgatac ggtgacgcat cacgtcatga      180
catacggcac gtacatctca ggaatcacat aacctctatg cttgatgaag gcgtatgcac      240
gtgcaccaat gctaaattga tagaagctcg gggcgaagct ccgaaactga tcattctttc      300
agagcattca agccgaattg ttccggatag cgcgtggcaa aaaaatatca actatatatt      360
gctcgatctt ctcacccaga tacacctgcc ttctacttgg cgcgcttcca gtatttcttc      420
cgtagtgatt atcggacgaa ttctgccgac cggccaccga tattctgacg aatgatctgc      480
atctcctcct cttttgggga tagtctatca gcaccttcac catgaatcgg tctacctgtc      540
ctctggcaac tgataagtac cctcttgctc gataggattc tgggtagcat tacgaggaaa      600
ggctcaggga gcttgaaagt cgtttcccca atggtaactg tctctcctgc atcgcttcga      660
gcagagcact ctgcactttg gcaggacacg gttgatctca tcagccaaaa taaagtttgc      720
gaaaataggg ccttgtttac ttgaaattcc tcccgtttct ggctgtacat catggtacct      780
accagtcagc tggcaagagg tccggtgtaa attgtatgcg gttgtacttg gcataatcag      840
tccggccaga gttttgatag ccaaagtctt ggctaattcc ggactccttc gagcaggata      900
tgtccatcgg ccaacagtcg gatcagaagc gctccaccaaa atggttctgt ccgacgatat      960
tctgcgccat accgtgcgtg tgagattcac aaatgagctt ttctgctcaa taagctctgt      1020
gagagcctta tgtcaatggg ttctactcat ttttttctat atcttttctt gctaaatata      1080
atgaagatta tgcacaccat ctcatgttga gatagacata tagcatctgc agggtttaag      1140
cgcaagtttc agccaacggc cagcattcgc tcgatcagag caaagccttc tccctgattt      1200
cagcaggcac ctttacttca taacgttgtg ggggagagct tccaagacct cccacaaacc      1260
tgtttgtttc atataaaaca gcggttgtcg ggttgaatgg caataaacgt tttacccgga      1320
tttctttccg caacacgtgt agcgtctccg gctctgtcgc aataacaaac attttttgc      1380
ggactcccga gcatgattaa gaataccggc cgtggaatac aaaagcagcg atcgctactc      1440
agcactcgtg gcgaatgaga gccctcgctc ccggatgaat gagaatatca gcatcgggat      1500
acagctccat agcctctaaa tggattcttc cgtaattcgc tcatgtacga aacacgaagc      1560
attccaaatt ccatctcccg tctgtcttt cgcgagatat aagctccaag gtttctaccg      1620
ggccaaagag aattttttctg tctcgaggca agctctccac taccttagtg cattgctgct      1680
tgtcaagcaa gtagtccgtc caagccttta cctcgagggt cgtattgaca tagctaacga      1740
tgagtccatc ccgggttctg ctctccacc gacgcaagcc ttcagcagag gcaccttcgg      1800
ccaaagaaca accgcgtatt tcgtgggagt gaggatagtc ttctgcggcg aaataatcga      1860
agcgtttcgg ccatgaagtg gactccgcaa aagagtatcg tatccgcctc ctatcggcag      1920
cctgacggga cagaccaaga gaatcgccga tataatcggc atgtcctgca cctcagggcg      1980
tgcatagtag tgcgccaaaa taatggcate cgttctttct tgagaagttc tatctcctta      2040
agaatatcct ttgtttgcta caaaaaccaa cttaaagctt aattgagtaa ggaggaaatt      2100
catgctgtgt ccatggcgtg aacgctatga gtcaaagcgc ctatgctgat gtaatcacac      2160
ccgtttctgc cacactttgc agccgttcga gtgtcatat      2199

```

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 611 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

```

gccgacggcc ggaatgtact tgcgggtact cgcttgcga taacgactcg ttggtgctac      60
gggtgatcaa cggctatgcg ccgcttctctg ctgattcgca ctgatcgacg aatcgatcac      120
ctacggttca tcgcaggaca gtgcttcggg aagaccgaag aggagaatag cgaatcggtg      180
tggtaatcgg gtatacttat ggaggaagaa cttcagtacc ggatgactcc cgagatggcg      240
gagctttcga cgaagacgat gcagaggaca tctcggacgg cggactcgac ccggggaaga      300
ggacagatac gaacatttcc gcactgtagc agatccggga cagcacttat tcgtatcgac      360
aaattccttg tcgacaggat gaacaacgcc accgcagccg tatccaacaa gcggctgaag      420
ccggtgccat attcgtcaat gccgaccggt aaagagcaac taccggatca aaccgggcga      480
tgtggtcacg tggaactnct ccggccacga cgggaattgg agatcattcc cgaagatatc      540
cactcgatat agtgtatgaa gacgatgtac tgctcgtgat caataagctg ccggattagt      600
ggtacacccc g                                     611

```

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 515 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

```

tctcctccga ataaccctcc gtgtggcttt cgagcaatct gtcataggct cgttataagc      60
attctgcccc ttgtagaata cattatagcg cgtagtgaat tgtgatagaa tcgggatgcc      120
gccgtattct tcgatgtgga gcaggacgca taccgaatac gacagctacc gggatgagca      180
gatagaatac gaggagtata gaaatctatg gctacgcatg gacaaaggac ttaatcgttt      240
tggtctaaagg aacaaggcca ccagcaccag aatgatgaag gctccggaag ggatcccaac      300
ctataactgc cccagagacc cgtgaaggct gccaaagccg ccagattaca gaaccgaaca      360
ggatcgaaga gaagtgcgaa gtgaaaagat tctgatgctc tgaggaaggg tcaggagcga      420
catcagtagc atgatacca caaacggata ctgagcacia taccacagc cacagccacg      480
gacattaagc tcttcacgag gtgaacccta attcc                                     515

```

(2) INFORMATION FOR SEQ ID NO:935

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

```

ggctgccttg tgcgcattca tatctcgggc aacaattacg atatctgctt tttcggtttg      60
gctttcccg tcttccttgc tgctcaggtc gggatgggat atattgggta ctgcgaggca      120
agattgtttg gtttatagga aatgcccttt gttgcttttc acatggggca ccatcgacac      180
ttatataccg ctgcatgaaa gataaaagag tctctgattc cgcagtcgcg tatcaagggtg      240
atgactataa cgtcaaggga ttcgattttc gtgctcacia ttcagagaat cccatcctat      300
tctcaaatat atcaaaggaa gtggagccga tatcgtatgc ttgaagaggc agtactgagt      360
cggaaaagca actctcgtaa tgtggggcta cgactttcaa gaaatatctt cccgaatatc      420
gctacatgga actggtcgca tctcgagaag atagaaaagg cagcggcctt atgctcctgt      480
ccaaatatnc atctcggatg tgcaccgcat tccataccga gtccgcattc atggcttcaa
540

```

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1106 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1106

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

```

attttggggc tgaacgacat gtcgctttca ctcactttta tagggcctgc cactgaaatt      60
cgggatcatt gtcgacaaaag ttcgacaaga aacggatacg ctttttcccc cttgtttatt      120
catttcgaat accacaccca ttagcggcag gcattgtgac ccatggattc agagggtgta      180
cccaatgaga gatccacttg tcaattttct tctctccatc ttgactgaag agtaagtttt      240
tattgaattt tgccctccat tcagagagaa cacatagtcc acaaaaactta tttttgcgta      300
ttgttgaagc cgggtgaagc gaaagccaaa gcaaaagggt tgcaccattg ttaagagaag      360
aaggcgaacg atagttggag gctatatcca cacgtacaac tgcacattgg agaagtcttc      420
cttatacacg agtttcgcat ttgcgcgttg gcatcgcgac tgaagaccgc aactctactc      480
ttatatcctc gggettattc atgagctcta ccgaccaa atcttgatgtcg gattcattct      540
acccgttacc acgatatcga agtcttgaaa ctgataatca tccgatggtc ccaatccctc      600
aacttttggg atgtggcacc ttggctcttt gagcggagat cttcacattg ctattgccgg      660
tgctgatatc actgtgggtc attacaagat ccacccgttg tccgccacac tcatcctcgt      720
ttgtaccagt ttttctgatt gtactggacc accttgacat catctcctcc catcgtctgc      780
gcttggcgag aggacagagg gttgcgacgg cgaaagccgc caccacgaat ttggtaaaac      840
ttttgtcttc atagtttttg tctttttttt gagactcaat tgacaggagc cctccagtct      900
cttgaattgt tgattagcga ttagtttgtt acttgatttt cagcagagca cgatggctca      960
tgattctctc ttaccggttt cgttccttgt ttttactttt tactgattgt attatcgttc      1020
acccatggca agagtgtcca aaatcgaaat cggcaattcg cacaacgcgg aatgcatgtc      1080
ggccttctca tgccacaaaag gaacgg
1106

```

(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

cgtcgcgctc	atgctttgat	gggagagcgt	atcggtatgg	atgtactcat	accatatacg	60
acgtatgtaa	ggctctgatt	gacaattatg	cagaagccat	gatttcgaag	gcttcaagga	120
agatctgatg	cgtgcactcg	cgatagatct	cctatcacgc	aagaaatatt	cagaggtaag	180
aaagcagaag	agctgacgat	atgcttttcg	atgaagctta	caagtctttc	caacgtaaga	240
tggattgatc	gcagaagtgg	cccacccgtg	ggttcatcag	gtattcgaga	cccagccgcc	300
gtgtacgagc	gcattctaata	ccccattacg	gatggtaaac	gtgctataac	ataggatgca	360
atttgcgtag	agcggatgaa	actcaaggga	aagcatcatc	aaagaatttg	agaaagctat	420
cgtactgcat	actatcgatg	atcttggaag	gaacatctgc	gtgagatgga	cgagcttcgt	480
aattccgttc	gaatgccagc	tacgaaaaca	aagatccact	acttatctat	aaactcgaac	540
ttacgaactg	ttccgcaaga	tggtagaagc	catgaaccgt	aagaccgtgc	gatacctaag	600
cgtgctcgga	taccgggtacc	ggaggctcct	tcccaagaga	gctggaacac	aggcggcaaa	660
tagaaatccg	acatgcagcc	gaacaagtac	ggacatgagt	aagtatcgga	cacaaaaaga	720
cgatatagaa	gcccacagaa	agcacaaagg	gatgcggcaa	gcagacctca	gggtgcagct	780
gctcccagac	accgataaga	aacgagaata	agatcgggcg	aaacgatcct	tgtcttgccg	840
tagtggaaca	aagttcaaac	agtgccacgg	gcgtaacctg	taaaagattt	atgagagaat	900
caccgactat	ggtatagaat	agtctgngat	ttctttttat	tttttctctc	taccgcata	960
taaaaaagac	tatgatccta	ctatgaccg				989

(2) INFORMATION FOR SEQ ID NO:938

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 837 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...837

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:938

gcgatttatt	ttgtgggggtg	caattcatgg	agtggcactg	gccgtacaca	actctgggtgc	60
gagatctttc	cgctgaatcg	ggctatgtcc	acggatatcc	tttttggcgc	agatggctcg	120
gacggatcat	tactttccat	ctcgtctttt	gggttgatc	ttcttccgat	ccgattcgat	180
ggcggtggtc	ggacagttct	tggacaaata	ttcaacgact	tccatcccga	agttttcttc	240
caattattgc	cggctacaag	ggcgttggtc	tactgatggt	cataggttac	ctgtgcattt	300
tgctcgtaag	ggtaagcgaa	acagggcgca	atccatgctt	gaggtgctcc	gttcgtcttg	360
caaactctga	tgctcgttct	cctgatcttc	atatcattca	ggtacgcagc	tcggaaatac	420
agcccttcat	atatttccag	tctaaatatt	cttactgcgg	tctcctttca	tctaagtgaa	480
cgataaggat	tgcctgttag	gactctataa	gttcggcaat	cttccaaaat	gagactgttc	540

atgggagttt	gattgagctc	ttttgctgca	gagctgattc	ttagtgtctc	gggaaaggtc	600
aaacctccgg	tatatgggca	ccgagcaaat	agaaattccc	caggtttcca	ttagagaagt	660
actcctttcc	tcgtcaaata	ggcgagaata	agaaacgatt	gtcagccgtt	tcttgctccc	720
tgcatgatgc	aggaccgatt	gtcggctggt	tcttgctccc	tgcatgatgc	aggacgcgat	780
tgctcgctgt	tcttgctccc	tgcatgatgc	aggacgcgat	tgctcgctgt	ttctgct	837

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 903 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

cttcgatgat	gcttggagtc	ctctcagatc	actgcgtaga	tggtagcgtc	tctttgcate	60
cctgctgcgg	gctatcaata	tcgaacctat	cctcggttca	tgcccggcca	tatgttcgtc	120
ggttattaca	cggatatatc	caaaaaaaaa	aaacattcct	ggagacaacg	atgatcgggtg	180
atgtcgatgt	ggacgatttt	tccctgatga	gcagttggat	tcgacgatga	taggcaaata	240
ccaaatcaga	tgtccaagct	gactttcgag	aagtcgaaa	aatatgccaa	caagaataatc	300
aggaaaacga	agctgacatt	cactccggca	agtcgggcta	tatttcttgg	aaatatccaa	360
agacgtgcga	aggcgaatcc	aatccatcgg	cagtagcatc	gcttttgccg	catcgctcctt	420
ttgaaataag	aatacgccgg	atgctatgtg	gcttacggct	atgcaggctc	tcagtacacc	480
tttctgacat	aaaaagtgtg	ccgaaaacgc	tgctgaagcg	attttcgaca	caccctcatc	540
cttatgctta	tatgaaaagc	cgcactggcg	atagcgtaaa	ctccgaaaac	aagatttgag	600
gattccacca	cctttgtaat	ccgctgtgca	aagcaaccga	aaggtgcggc	ccgccatcag	660
cgatgaaatt	gtcctcggaa	tagttgtatg	atgagtttcc	ccgatctaac	agtgcggctt	720
attcctcgtc	ttctcgattt	gcaaagttag	caacattggt	tagatttgca	attccttggt	780
tcattgattt	gggtatggtt	acactttcgg	atcctaatac	gcgttctcga	cgttcaaacg	840
tattacgata	gttcggttgc	ttaggtaatc	tgctttgacg	atggggaagt	tttctccggt	900
ttg						903

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1107 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1107

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

atgctatcat	gaaagcattg	tcgatacgca	atttccaagt	gcgcgactaa	tgacagggct	60
gaagatgtat	tcgacgagga	agggtttnga	cattataccg	agatccggat	gacggatgcc	120
cgcagtaagg	gggtggatac	gaccggccat	ttgccggcag	tggggatttg	cttcggggagc	180
tactccattt	tatattcatt	gatccgtttc	tcccgtagta	atccaataac	atcaacccaa	240
taaaaaggat	agttttttctc	gaactaaaaag	tcgcaaaaac	aacgaatagc	aattgctgta	300
cgaatgtaaa	ctttgactaa	ctttgcaaaa	gcattttttc	aaacataatc	aacaagaaaa	360
ttagaaatga	aaactcctgc	agaactgaag	tatctaagga	tcatgagtgg	gctcgccaag	420
aaggcgacgt	tgtcttcctc	gtatcacgga	ctatgctcaa	ggcgaattgg	gcgaaattgt	480
ctatgtggac	ttactaccga	aggcgaaacg	ctcgaggctg	atgaggtttt	cggatcgatg	540
aagctgtgaa	gactgtttcc	gacctgatga	tgccatctgc	cggcgaggat	tggaagtga	600
ccctgatctg	gaagagcaac	ccgaactcgt	aaacagcatc	cctacgggtg	cgggttgatt	660
atcaaggtta	aggctgcaaa	tgctgcgact	tcgacaacct	cctgagtgtc	gccgaatacg	720
aaaaactgat	agctcataaa	tgacgccttt	ggtaagcatc	atcatgggta	gtacttccga	780
tctgccatta	tggagaaagc	cgccaaaatg	ctcgatgaaa	tgacagattc	attgagatgt	840
tggcgctttc	ggctcaatcg	actccggctg	aagtagagac	tttgacacag	aggccagagc	900
tcgcgggtatc	aaggtaatta	tcgctgctgc	cgtatggcag	cttcatttgt	gtggcgtaat	960
tgtctccatg	acgtctatct	ggtaataggt	gtacccatca	atgccactct	tgacgggaatg	1020
gatgctctgt	agccatcgtt	caaatgcctt	ccgggatccc	cgttgctact	gtggggataa	1080
tgctgccaga	atgcagcact	tttgccc				1107

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

cgaaaaggta	gagataaaga	ggccgtgagc	ttccttgggg	aagacttatt	ttcagcacac	60
ccaaagcggg	agttttctgag	aaaagtaccg	gagtatctaa	gagggttttt	tgctcgattgg	120
ggggaggaga	tgtttgccctg	tttggcatct	cttccccttc	tccacaatgc	acttatgacg	180
gacagatact	tcggttattc	aatttaggca	tttcaactacg	accatccctt	aggaatgggc	240
gagcgctgaa	gggtaagaaa	tggtatgaga	gatgctgcct	actcgaagcg	gcgcctatat	300
ctgcctcttc	gatgatactg	acgatgagct	tgccgtccgg	cgtaggtgg	agtcgttcga	360
agcaaaagct	cggccaagag	atcgtggcc	tctctgctgt	cgggtgtctg	ccacaaggga	420
tggcttgata	ctcggctatt	tggtggcaat	cagttcgagc	atttgttcat	gcgatgatct	480
gccatcttcg	gtgtagtatg	gatgacatcc	cgcacgacat	ctgccgcaca	gtctatgatt	540
gtacagggtg	tgccagcagc	gaataggaag	agacaccgag	gggcgacaat	cgaacccgac	600
agattggagt	tcgtccacag	ctgccttcac	ggcagaacat	ccgacggatt	gaattcgagg	660
agttcgggga	agagaagttg	ttgctgtcga	tatgacgtct	tgattcgtcg	gccatgaaac	720
gatcgtaaa	aataccttgt	gtgcgcgggtg	gaaatcgacc	aaagccaaac	ccctactcag	780
agtatcacca	gataacggcc	gcgatggaca	tagcagagca	tatcgggtgga	ggggctcgag	840
atacggcaga	gggagtaaaa	tcggctcgagg	cgaacagctc	ttcgagcgga	tcgggtgggtc	900
tgccatcttc	tcggcatctc	gcttggtctc	gactgcttga	agagtctggt	ccagcccata	960
tccggcgatt	gacgcgcgga	ctgcggatag	gctccgtcag	tccggtttct	ttgaagggat	1020
tatacgatga	tccagatcta	cgggcggagc	aactacgttt	ttcccggggc	cttgatagca	1080
gggatgtcga	tcagttcttt	gcggtcgaag	tcaatggccg	ggaactgctt	ctggagctga	1140
gtgcttcacg	aatgaccaca	ccgatgaggt	tgaataagcc	tggtcgtcgg	agaacttgat	1200
ttcagttttg	gtcgggtgga	tattgcatcg	atctggggag	gttcaagatc	gaaatacagg	1260

aagtaattgg	gcatgttccc	tgaggaatga	tgcctccta	ggcagccatc	acggccttgt	1320
ggagtaagga	tgacgcatga	agcgctcgtt	cacgaagaag	tattgcaggg	cactcgtttg	1380
cgagcaccat	cggggcgccc	tacgaagccg	gatataattg	tatggggctt	tccatcccga	1440
tgggtatcag	attctttctc	attctttctc	gaatacatcg	aggattcttt	tcttcagagg	1500
agaaggaggc	agatcctgcc	cagctcacc	gaatggtaga	tagaaaaagc	gacttgcgga	1560
ttgaccaagc	caccgcgttcg	tattcgggtca	ggatgtgccc	aaattccgtt	tcattcgttt	1620
gaggaatttt	cgacgtgccc	gtacattgta	gaagagggtt	ttcacaaaag	aatacagccc	1680
agtggagagg	tgacagtagc	cacttcgcct	acttcgagcc	attgatggta	aggcgcgtac	1740
ccaattcatc	ttcagccctt	cggttaggag	ttccacttgt	gcaacggctg	caatcgaagc	1800
cagggttcca	cctgaaaacc	catcgtcga	aggctgaaca	gacctgaaa	agaagctatc	1860
ttgaagtggc	atgtcgctcg	aaagccatc	gggcacgct	ttggctcatg	ccttgccgtt	1920
gtctgtgacg	cgtatcaatt	cgcgacgggc	ctccctgaca	ccagcctgat	aatggaagcg	1980
ccggcatcca	atgcgttttc	caatagctct	tgacgaccga	ggcgggacgt	tggattactt	2040
caccggcagc	aatttgatgg	cgatactgtc	cggcaggagg	cgtatgacgt	cgctcataag	2100
atgacctaaa	aaccaaccac	gatagcaaac	aaacggctat	gagcaaaagg	aacgtaggag	2160
tgctcgtccc	gagcgagtgg	attgtgtctc	gccttgccgc	tgctcgtcct	cagatgctgg	2220
gtaccttcca	caaatgttcc	gcgtatacga	ggcatagcc	ggagtagtcg	tgtgatgaag	2280
actgtccgtc	cagctctgct	tgccctcctg	ttctacttcg	cgtctaatac	gttcgatacg	2340
tttctccaac	tctcgcgtcg	ctgatcgtaa	tagatagggt	tgtggtcaaa	agaccggggc	2400
tacgctgttt	atagaatgat	cctaataccc	tagtttttct	ctattaaaga	gaatggagtg	2460
aagaaaagat	cgaagaagcc	ttcctctttg	gtgtccgtat	aggctcgggc	atataaggag	2520
agagccggtc	tgtaggatcg	gtagcctctt	gccggctgca	ggtgtcggag	gaatggagtc	2580
ggtctgtagg	gcagcgatgt	caatgagtct	tttctctcct	cttcggccag	agcccgtgta	2640
tgcacgaggg	ctgccaaagc	accgctnaag	cgtcgcaaat	cggacagcga	tccgagcacc	2700
tgcaaagacg	gaatcccggc	tggcctgcgg	aaaagatcct			2740

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 881 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

tccaggacgg	atagcccgca	tagctcccaa	ccatgcctct	gtgctgatcc	ggccgaagag	60
cggtacgggc	aaagagttga	tagccgaagc	tctgcacctg	ggagcaaacg	agcctcagcc	120
ccattcgta	aggtaatttt	gggtgggttc	ccgaaagtbt	gttcgaaaagt	gagctgttcg	180
gacataagaa	aggagcttta	ccaatgcttt	ttccgacagg	aaaggacggg	tcgagctggc	240
tgatgcggca	cgatctttct	ggacgaaata	ggcgaactac	cggtcggcaa	ccaataaaac	300
tgctgcgagt	gctacaggaa	cagacattcg	agccgttggg	tgaagcgtct	cccaccgagt	360
ggacatccgt	gtggtatcgg	ctacgaatgc	ttcttgaggc	gaatggtagc	cgaaggacgt	420
ttcagagagg	acctctacta	tgaatcaacc	tgatcatct	gcatctgcct	ccgctgcgtg	480
agcgtcagga	gatatacagc	tgctggtgga	agccttcagt	gaagcctttg	cccaatcgac	540
ggattgcccc	atgccgtttg	gagtgcggaa	gctatgcgac	gtatctgtcc	atgcccttac	600
cgggcaatgt	acgcgaactg	aaaaacgtag	tggagcgacg	ctattgctct	cgggatcgag	660
agaaatcagt	gcccgggatg	tggctgcttc	ggttcgcagg	tgacggcagc	agaccactcc	720
gacgaacggg	ctttgccgac	atggaggaag	ctgctatccg	agagacgctg	actaaataca	780
acggaacggt	agtcgtgctg	cacgagcctt	gggattgagc	cggcaagctc	tttcggcgca	840
atggagaaat	acggactgtg	atagtgtgta	aaacagaatc	g		881

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

agcagcatca	cctgctgtcc	gtgctcggta	atgtctgtga	taaactcacc	gtatcggcat	60
cgtaaacagc	cgtcccgag	gggacttcta	tgatacgacc	tctccgttcg	ctccgggtact	120
tcgcttggtc	ccgcccgtct	gtccgttgta	gccatgatat	gacggtcata	gcgcagatgc	180
agcagtgtcc	aataatccga	ttgccacgga	gaaagacatg	tccgccacgg	cctccgtcgc	240
ctccgccggg	ccacctttgg	ggatatactt	ctccctgcgg	aagtgcgtag	agccctccct	300
cccttgcccg	aacggcagta	tatcttgacg	taatcgacga	aatggactct	gctgccatac	360
gatggattta	gttagagact	ttgcggaact	tgccacaatg	ggagcgatac	gcaaagcgat	420
ctcttctatc	gtccccgtac	caccacg				447

(2) INFORMATION FOR SEQ ID NO:944

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

aggatcccca	gcctcaagcc	caagaaagga	cgcttcctga	gcagaaagaaag	cgagccgaag	60
agtgaggagag	cggtaaggag	cggttccgag	accttgagct	tggtcgcaca	gtgctgctcg	120
tcggatagag	gatgcttttg	tcggaatgag	tatgcaagtt	gggaaaataa	gaagaaaatc	180
gagcagctgt	tgcaggtctc	tccctttggg	aaacctttga	gagcaagctg	aaagtcaagg	240
cagacagata	aatattgcca	aactgaaaaa	ggaaatnctc	gaagccaaag	aacaccctat	300
cacgacttca	agtcgtggca	gaagtccgag	cgcgaaactgc	gcctgtcaag	aatcaggata	360
ttatcacttg	gatgatgtgc	agggatctca	tgaagagaac	aaggtggagg	gattggatac	420
cggtactctc	tacctgaaag	aattcggacc	gacgtccaag	agcaggggag	cctcaatgtg	480
ctgaaccacg	gaaagccgat	gcgctttgcc	cgtggctcgtg	tacagaagcc	gacaggccga	540
ggccatgtac	acaaggagga	ggcttccctc	ggcgacggtc	tatatcgaga	aaggga	596

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 712 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

```

gccgttctac ggcaaggaag cgtaagtatg tcaccagccg gcatattcag accgtctgat      60
gcgagaactg gacaagaatc tggctctttc gtgtggagcc accgataacg ccgacagctg      120
gctcgatttc gggcggtggc tactgcactt tccgttctta tcgagaccat gcgccgagag      180
gggtacgaac ttcaaggggg cagccccaag tgatcatcaa agagatagac ggcgagcggt      240
gcgaacgata gagcttcttt cgatcaatct gccggaagag tcctccagtc gtatatagac      300
atagtgaccc gtcgcaaggg agagatgggt atgatggaaa acagaacgac cgggtgttta      360
tggagttcca tatcccttca cgagggatca tcgactcaac aatgccgtac tgacagcatc      420
ggcaggagag gccgtaatcg ccaccgcttc ttggaattcc aaccgtggaa aggggagata      480
gagcggcgca caacgggtcg atcattgcgc tcgaaagcgg aacggcctat gcctatgcct      540
gaataatctc caaaagccgt ggacgcttct tcatctctta cgcaggagag gtctatgccg      600
gtcaggtcgt aaggcgagca cacgaaagga agggcgactt ctgcgttcaa cgtctgcaag      660
agcaaaaagc ttaccaatat gcgtgcttcg gtagccgatg ataagtgtca ct              712

```

(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

```

cggagcatcg tggtagtcg tgttggtggc gtatgccagg gcagggtggc tgtagtactt      60
ccggccaaca ttcccatcag cgtaagataa ttgatcttta tcctttgcaa gcgataaatc      120
cgatgataag gagaggcagg aggggtgatat aaaaccgtat ccgatccatg taaaaccacc      180
tttgtttact atcgtacgac gaacccctct ccgycccccca atcctacgca agccaagaat      240
atggtatgcc gatttctctc aacatcaaat tggcaactgg agtcgtataa gtcacagctt      300
ataccgataa ccgaaccgac tcaatagaat agccaccacc aatggccacc agcaagtccc      360
agcttgacgg gctgaggaat accgggcaaa acatcggaag cgaacccaaa aggataaccga      420
gaccgatgcc gatgaatat gcattaggtt cggttcgttc agtcgtttga caagaattac      480
cgatcagttc tccactttgg gcattactaa ctactgccc actacagtca gacgatcgcc      540

```

acctgtagcg gaaggaagcc aatgctacca tctcaacttc ggcacggta cactgtcac
attcatgccca tgcattttgc gt

600

622

(2) INFORMATION FOR SEQ ID NO:947

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

ggaaaaattct	tccgattctc	gaccctgaaa	atagattttt	tggaaagctt	tgaataatat	60
gtctcaacct	atcaatgact	tataaagggt	cggttgggat	acccttagtt	agaaggggtg	120
agacaactcc	cattttttgag	ccaaatcgat	acaaatgttg	ggaataccct	tagttagaag	180
ggtggagaca	actacacatc	tttagtaatt	tcttttagtaa	tgttgggaat	acccttagtt	240
agaaggtgga	gacaacgttg	tcccaagcct	gaaaggtagc	gttgctggtg	ggaaaccctt	300
agttagaagg	gtggagacaa	caaacgcac	gttataagtt	ttttgattgc	gttggaata	360
cccttagtta	gaagggtgga	gacaacgttg	tccaagcctg	aacggtagcg	ttgtcggttg	420
gaataccctt	agttagaagg	gggagacaac	aaacgcacg	ttataagttg	ctgtgattgc	480
gttggaata	ccttagttag	aagggtggag	acaacacctt	tgcttcgaca	tcctcaggac	540
ag						542

(2) INFORMATION FOR SEQ ID NO:948

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

cgctcttcta	taaaatgcgt	gatgtccatt	cctttcagat	tctgttcttc	ccgatacggg	60
acaaacgctc	cacctcgca	tccagacgat	gaccgatcgc	tccagcagga	tatgcgtatc	120
ggacatattg	cgcgatgct	gtccgacgag	gtaatttcgt	cgaagatgcc	atccacattg	180
gtcagattga	aattgcgcaa	atggacaagc	acttggcacg	cpagttgctg	cggcgtatca	240
tcggaggacg	aaagtcagac	cgctctttcc	ggtagtgctg	tagcgcaagt	gtccatgtag	300
cactctccgg	catacgggat	ctgagaggca	gcaaattcgg	catgcccgag	tcttctcgag	360

aataagcctg	aaaatccttg	tgtaccgagt	cgatatctcc	gagatggcat	ttgccccaaag	420
tgctctttct	ctgaagaggt	atcttctccg	ggacggctgt	tgagcttcac	cacagcgagc	480
ccggcacctt	ctgacctcga	ttgtgctgct	tctccatcag	gaggtatagc	ttgntcangc	540
atacatccat	gtgccatact	tatcg				565

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

ggatctttca	accccatctg	tatagtcgta	cggcagactt	ttatcaggat	ttgccagaag	60
cctttccatg	ttggatgagg	tggttttatt	ggacattttc	cggcacgaga	actccctttg	120
ccaggtgtga	ccagtcgtct	gatattgatt	tgatcgagaa	tcccaataaa	acgctgggtga	180
gcaaaaacga	tctgctgatt	atttacacgg	caacgagata	cccgatgtcg	tattgatact	240
cggagcggcg	atatcgatcg	gttagtgatt	cctgncaaac	aatatctcca	aacttatgct	300
aaagaaggtt	ctttatatac	tggggttctt	tcttgtactg	gccatcttgt	tgcagccata	360
gttttctttt	cggactattc	cgatagcact	cgtgctcagg	tttggaagtt	cgagtcgagg	420
gtaagacgaa	acatgcattc	agcaaaagac	cgatgtggag	cgagacttga	agcgtctggg	480
tttcaccccc	atggcaagct	gctcgactct	atcgatcttc	acagaatgga	aagaaacctc	540
gtgctaattc	ccttttccgc	ggagcggaat	tgtatgcctc	tccatccgcc	aactgtatct	600
gacagtggaa	caaaaagatc	cgctctttat	ggtagtagat	ccgataacct	tttctatggt	660
tctaccgaca	ggagcgtgat	cgttccaact	tgcagtatgc	tgcccccgta	ctgatggcct	720
caggggatat	atctcgtcct	tagctaccgg	ccctctcttc	gacctcattg	catttatcaa	780
gcgagatcca	ttctggncaa	actttttcgc	tcaaggttat	gtgcccggat	aatgncagaa	840
catattaagt	tccccgtctg	ggcnaaactg	ga			872

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

agatcatacc	ggatataaat	gccgttggat	gtggcctaaa	gttcgctatg	cttcggttta	60
catggtgaaa	attccttacct	gaaagtgccg	actaaagggg	tgtatatcaa	ggataccata	120
tcgtaggtgc	tgtattcggg	ataggaaccc	gctcaatgac	agacgttcgt	tcgtaaatgt	180
ctctcttgaa	tatgacgatt	gatcccgaa	gaggggtatga	tcaaagaaaa	tgctctgaaa	240
ttgacttcgg	cctcacgttc	aacgagtcac	ggtttaaaaa	gctgaaactg	aactacagaa	300
ggaaaaatgt	tgaacattaa	aagaataaag	aagaaaaatga	atgaagaaat	ttgtttgcaa	360
cggcagcact	gctttttacc	gcaagcacag	ccttgctcag	accggagtcc	aaacaaatac	420
cccattcggg	agtggagaag	aagcatccgt	tgccgtcaaa	acataagtct	ctttacctct	480
tatgcgaaaa	gggtaattac	aaggatgcct	atgatttttg	ggagaaagcc	tatgaggagg	540
cccc						544

(2) INFORMATION FOR SEQ ID NO:951

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1618 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature:
- (B) LOCATION 1...1618

(xi) SEQUENCE DESCRIPTION:.. SEQ ID NO:951

gccgtcagtg	atattgattt	ttccatccct	tcaggggcaaa	cctatgcgcg	gtcggaaactt	60
ccggaggggg	taagaccact	atagcccgac	tcatacctgc	ttttgggacg	ctaccaagg	120
ccatatacgt	atcggtggag	tggatgtagg	gatatggcaa	aagaagagct	gatggacagg	180
atctctttcg	tctttcgaat	accaaacttt	tcagaaccac	cattcgtgag	aatattacct	240
atggcgctcg	gatgcacccg	aggatgcttt	ggctcgtgcc	atcgaccttt	ctcaagccgt	300
gaaattatag	agcgtttggc	cgatggactg	caaacgaaga	tagagccgat	ggcacgtatc	360
tctccggagg	ggagcagcag	cgcatagctt	tgctcgtgcc	atactcaagg	atgctcctat	420
tgtggtgctc	gatgaagcca	cgcttttgct	gatcccgaaa	acgagaaatt	gatacagcag	480
gctttgcacg	actgacgaaa	ggaaagacgg	tgctgatgat	tgctcatcga	ctgacgagct	540
acagcatgtg	gatcgtatcc	ttgtgataga	gaagggaacga	atcgagagaca	gggtaccac	600
gaagaactcc	tgacacaagg	tggtctttac	aaatccagtg	ggaggaatac	cagcgatccg	660
tttcttggag	attatgaaa	aagaaaacac	acaattacct	ctaatacgaaa	cgaaacaaac	720
ctatgatacg	atattccaac	accgattcgc	tctctctcgt	aagggtgcgc	aggatcctgc	780
caaagcattg	catggactac	ggttttgaat	gtcggattta	tggtgcctgc	catttcactt	840
ttcttttcc	cgaagactat	ctgcaaggat	ccgccacaca	tgtatttggg	attatatagc	900
catgggagcg	gcttttatgg	cggtgctctt	cttatagctc	tcttccaata	cacaagcctg	960
tacaccaaga	tatatacaga	agtgccaacc	gnccgatcgc	cttggttgaa	aaactacgca	1020
aactcccatg	gctttcttcg	gagagaagaa	tctgtccgat	ctgacttcca	cgatgatgag	1080
gatagtacgg	tgatggagac	tgtcttctct	cacagtatac	cccagctttt	gcacggttgg	1140
tcagtctctt	tttgatcggg	atagggctct	tctgcttaat	tggcagcttt	cggtggcact	1200
cttttggggt	gtgcctgtag	cagcctagca	attgtctttt	ccaaaaagat	gttgaaacaa	1260
tcattccact	cgaataccat	gtcaaacgag	aggtcaccga	gcatatacag	gaaggaatcg	1320
aaggatacag	gagataaaat	catataatgg	cgaagaagaa	tttgccgagc	gctcgatgcc	1380
aaactccatg	cctatgagaa	gagccttatt	cgatgtgaac	tggtgtcggg	gccgtcctta	1440
atgcttcaca	tataatcctc	aaactgggac	tgcctctgta	atcataatgg	gagcttatct	1500
cttgtcagaa	ggaacaatta	tctattcact	tatttagtct	ttctgcttat	tcggatcgac	1560
atatataacc	catagtgaag	tattcagcaa	ttgctactct	gcagtaacct	gatgtacg	1618

(2) INFORMATION FOR SEQ ID NO:952

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

atctcatcaa	tcaaaacata	gtatttccctg	cccatatctt	ttgtttgctc	atgatatagt	60
cgtataggag	attgggatta	cgatacttga	tatccgattt	ctatcaagag	ctacctccac	120
gaaatcttct	ttttgagctc	cttccctcctc	aatcgattct	taaagagagt	gaagagtagg	180
aatgactttc	ctgaactctt	aatcccgtaa	caatcttcac	cttaccattc	catcgctttg	240
cgaatactgt	gcaatgtatt	catttctgtc	tattatcata	aataaggtct	cttgtgattt	300
ctctgaaatt	ttagtcgtgt	attacaactg	ttttgtcagt	gcaagatatt	tttttgcttc	360
gaactaacia	aaaaaataga	ggaacaaatc	tatacgatgc	ttttgatgta	gccgaggatt	420
ttgcgaatac	atttcaaaac	actttgaggt	ggggaagaaa	cggaaaatta	ccgtctttca	480
aaatcgggaa	cggcggttatt	ttccggtaga	ag			512

(2) INFORMATION FOR SEQ ID NO:953

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 585 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

ctgaagaatt	gtaccatgtc	tgccaanttt	ccgttggatg	ttcgctcgga	acaaaagcca	60
gattcacttt	cttcttcggc	ccgctcaaat	acaatatgta	tcgctttacg	acaaagggat	120
gaaagccgag	gacaacctcg	atctcgacac	ttggtctact	tgggtgccag	tatcttccga	180
tgatcaatc	gttatagatc	attccggcct	ccacattcct	gcagcagtat	tttagcaact	240
gggggtgata	attcttttgc	tcacgctggg	gatcaaaactc	ctcatctctc	ctctgcttac	300
aaggggtatc	tctcctctgc	caaaatgcga	ttgctacggc	cgcggtacaa	gagatcaatg	360
ccaagtaccc	gggcanggat	caggaatcca	tgtgaagcgg	cagtctgcta	ccatgaatct	420
ctatcgtgcg	gccggtgcag	gccgatgagt	gggtgcttgc	ctatgctctt	ngcagttccc	480
tttccctcata	ccatgtacat	gtatttccct	acgactatcg	acattcgtag	cagagtttct	540
ctgggcggaa	gacctctcct	ctatgatgct	ggtttcagct	ggacg		585

(2) INFORMATION FOR SEQ ID NO:954

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1050 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1050
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

cctatataga	gatagagacc	ttctcttttt	tcaaaggtct	ccttaaagtt	aatgatccgc	60
cgagcaattg	cacttggaac	cggaatgtgc	aagtatcttc	attcatttgt	attgcggtac	120
gaatacatta	cctttgcgcg	caaaaaataaa	cccccatcaa	ccagaaggat	gaaaaactta	180
gtcatcgtag	agtctcggca	aaagccaaaa	cgataggacg	tttcctcggg	tcggattata	240
cagtatctcg	agttacggac	acatccgcga	cctcaagccc	aataaattca	gtgtgatata	300
caaaacaact	acgagccgga	atacgagatc	cctgccgata	aactccggta	gtcaaggaac	360
tgaaatccca	agccgaccga	tcggatttca	tcggctggct	tcgatgagg	atcgcgagg	420
agaggccatc	gcattggcatt	ttacgaagca	ttagggtga	aaaacaaaca	gaccaagcga	480
attgtatttc	cgaaatcacc	gagacagcca	tcagagctgc	tatcgaaaat	ccacgagatt	540
agacatcaat	ctggctcgatg	cccaacaggc	gaggcgcgtc	ctcgaccgat	cgtcggcttc	600
gaactttctc	ccgtttttatg	gagacgtatt	cgtcctttct	ttcggcaggg	cgtgtacagt	660
ccgttgcaact	gcgtctttatc	gttgaggaga	gcgtgagata	aatgctttcg	tgccggaagc	720
atccttccgc	tgtacataga	gttcgtcctt	cccgaaggta	gaatgctgac	ggcggaattg	780
cagaacgatt	caagacgaag	gaggaagccc	gatatttctt	ggagcaatgt	atgatgccca	840
ctttcatata	acagacgtta	cgaagcgtcc	gggcaaacgt	ttccggccac	tccttttact	900
acctcgacgc	tccagcagga	agcagcccga	aactcggcta	cggtgtggca	cagaccatgc	960
gtatcgctca	gaagttgtac	aagaaggctt	atcacctatt	gcgtacagac	tctgtgaatc	1020
tgtcggatag	gcncctcgtgc	actcaaaaga				1050

(2) INFORMATION FOR SEQ ID NO:955

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1167 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1167
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

ctccacgccg	ttgtacatga	tcgggtcgat	gcgcgtcata	ccgatattcg	catcacgcga	60
agatgagtca	gatattcctg	tccgaacgtc	atccaaaacg	agcgcgcttg	atcgctggga	120
aattcttcac	gagtgattcc	agttcctatg	atagaggaga	taggactcgc	gctcacccgat	180
actcggatag	gtcagctctt	gtgtatttcc	tgcggttcgg	tctctatcca	acggccgttc	240

tcccatactt	acccttctga	gtgatctcac	ggatgttgat	ttcgggattg	aagtcgtggc	300
aaacgccttg	tgggtggcgc	caccattgca	gtccacaata	tcggataatg	aatctcatcg	360
aaatgatgct	tggccgcata	agccgtatat	acctcgtcac	acccggatcg	aagccgcaac	420
ccaggatagc	agtcaggccg	gcttgcgaaa	acgatcctga	taagcccact	gccaactgta	480
ttcatacttg	cttcgctcag	aggctcgtag	ttggccgcat	cgagatagtt	caccccacac	540
gcagacaggc	atccatgata	gtcagatcct	gatagggaag	tgctacgtga	tcaccaattc	600
cggtttgaaa	ctctcgaaca	gagccaccag	ttcttcccat	tgctcgcatc	gacctgagcg	660
gtttggatcc	ggacgttttt	gatttcgacg	caatcttgtc	gcacttgctt	ctcgtgcggc	720
tggctaacat	gatctcgtga	atacatcggt	gttcatagcc	accttcttgg	ccacaacggt	780
acctcaccgc	cggccccgat	aatgaggact	ttacccattt	ttatatgatt	cttgtatgat	840
tattactcgc	ctgtagcgca	aagataaaga	gaacaggcca	acaatcggca	aaaagattcc	900
gcccccactc	acccggcccc	cctaaagcgt	aagatgcata	tcatgcagga	tcggcctacg	960
caccaaatac	ttcttacatg	cacgccataa	aacgtgggtg	gtaaactttt	ttgttttggt	1020
tcgggaagta	aaaattctcg	cgccacaacg	aaaaagttct	cgcaccactt	cgttcagaaa	1080
cacgcgccac	aatcagatca	tttgcggttc	gtatttccga	caaaactata	cggactaaaa	1140
ggaagttaag	tagtcatgtt	acacgggc				1167

(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

gtgaagagcc	gagcgaagaa	gatgaagcag	ttcagactga	agaaaatctt	tatgccaaag	60
tgctaaaaatg	attttataag	agagagagga	tattcatctg	gcagtacttt	tgactaatg	120
gggaattacc	aacagatgta	attgcatttg	tgttgacaaa	aaaagaaaac	gacatgagga	180
agttattttt	aatagctgct	tagaaatggt	tatgttcggc	tgtctcctat	tctcaaaagt	240
aactcaacga	taataatatg	agtttgggac	aaatacacga	actgcaagtg	catatttttc	300
gcaaattcca	aaggatttgc	tggaaaatat	ggataaaatg	ggctggacaa	ttcgtcaata	360
ctcaatgaat	atgaggggag	atattttta	ttatttttcaa	tatagaccct	caggttttta	420
atcttgtcgg	gaaaaaagtc	gcttttgggg	aag			453

(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

ctacgatgct	cggcgccacc	ctgctaagg	cctataaaact	ctacaaggag	gcggaataga	60
aattttcaga	gaacacatga	ccgtgctcct	cgtgggcata	ttgtggcctt	catcgtagca	120
ctggccgcga	tcaagttctt	tatcggtacc	tcaccgcata	tggtctcaag	gcattcggct	180
attatcgat	cttgggtggc	gtctgcttat	cgtattgatg	ctctcagggg	tatccttagc	240
tgtctaatac	gaaaaatgaa	acaaataaat	cgtccgctcc	acctgcgcga	gggaaagtac	300
tatacttcga	caaacctctc	acatggactt	cgttcgactt	ggtaataaat	tccgctatcg	360
ggcttgctcg	cggatgggta	tcaagaagtt	gccgtagggc	atgccggcac	attggatcca	420
ttggcatcgg	gcgtgatgat	ctgtgcacgg	gacgtgccac	gaagcaaata	gatgtgctgc	480
aggccggcac	aaagagtaca	ttgccgccat	cagactgggt	gctacgacac	cgagtttcgc	540
aaggaaaacg	aaccggatgc	tttcttcccg	tacgaacata	tcacgcgcaa	tcgatcctgg	600
acatactacc	tcgattcacg	ggaacgatag	aacaggtccg	cccatattct	ctgctgttcg	660
cgtgaacggg	aaacgcgcac	acgattggct	cgaaggggga	aagagggtga	gatgaaaacc	720
cgtacgttgc	agatcacgag	atcgaactac	tggagtatgc	cctacccttc	atcacgctac	780
ggatgtatgc	agcaaaggca	cttatatacg	tgctctggct	cgtgacattg	ccaagccctc	840
gaatcgggag	gacatttgga	ggcattgcgc	aggacaagag	tagcaatgcg	cgtatcgaag	900
actgcctttc	gatggatgag	ttggaacaat	gttcgaccgt	cttgggtttt	cttatgaacc	960
ggagttcgaa	caaaaagagg	caatccgtct	tccacaccta	caaataaa		1008

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

taaaatgatg	atgacagact	gtttttcggc	ggctgcagtg	gtcccaaagc	ttaccgtcac	60
tcactttctg	tggaatgatg	acttctcaat	cggtttcaat	tcgatggggg	taggttggat	120
ctacctcta	ttcgaagggt	acacacactt	cttgtcgaag	taaaacatct	tgctccaggt	180
tggatctacc	ctctatcgaa	gggtacacac	aaccatagac	gtaaggcata	cccgtttcga	240
tctgtggatc	taccctctat	tcgaagggtg	cacacaacat	aagactatat	cttaataaac	300
aaattctgtt	ggatctaccc	tctattcgaa	gggtacacac	aaccaagggt	cgggttcttg	360
accttacctc	cagttggatc	taccctctat	tcaagggtac	acacaactat	aaagggtttg	420
tcaaggaatg	tgtaccggtt	gatctaccct	ctattcgaag	ggtacacaca	acgatgcgga	480
caacgtccct	tactccgtct	tggttgatct	accctctatt	cgaagggtac	acacaacagc	540
gattagctcg	tcgcgcgaca	cgtcttggtg	gatctacctt	ctattcgagg	gtacacacaa	600
catgattctt	gattgggtgg	ttgggcgttg	gaaatgtcag	tagtgtgggg	attcttctct	660
gttggggcct	tttcgctaaa	tttgacgcgg	acgaggtgc			699

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

cgtcgaggct	gtttcggtgt	agtatcggac	atgtcaagag	acgtatttga	ggttaggagt	60
atgtgcttga	gccggcgaag	gagcagtagc	ggcagcaagc	gaagatgacg	aaagcgagga	120
tattggtcca	agcatatttc	agggaaatcc	atcaagggca	cttgtcacat	aagagagata	180
gtagtgccct	aacggaatag	cgcgctggcg	gactgcatga	cagtcggcat	accgagagcg	240
ggaaagaggc	tccgcataatg	gagaaagaga	taatgcccc	tagggaagca	aagcaagtcc	300
caatctcatc	gtcgggagg	tgacgaacat	cagtacgcca	aaacctgaca	agcgaggatg	360
aagagataca	tgactatcag	catcggcaag	aaccgccatt	gatcgggtag	gagaggaagc	420
catacagata	tacgtctata	aggtgccgat	gagcatgaat	gccacggttt	ggggtagcag	480
cttgcccaaa	ggcgatgga	catactgccg	ccggccgtct	ccatccattc	tcgagctgtg	540
atctcttgat	ctccatggct	atgctacaca	ctgtgaccat	gaagatgaca	gaccagtagc	600
gccgggtatc	atgatattgc	tcaggtagat	ggagtagtga	gccacggatt	gcctatgggg	660
tgctgtcga	taacgatcgg	ctgtagcagt	ccatggcctg	gctttcggtg	gctcctcggg	720
cataaagttg	cgaacagcgg	ctgcaccggc	taccagttcg	ctgatcatct	tgttgtccct	780
gaagggagcg	agccaccac	catataggca	tagttggtat	agaaggagag	cttggttgc	840
ttctgtgcgt	aggcatccc	tgctattccc	tcgggtatat	agagtaaccg	tatatctcgc	900
ctcgtgact	gccagccgag	ccttacgcac	gtttcgaact	gttgaccatt	tgggttgctt	960
ccat						964

(2) INFORMATION FOR SEQ ID NO:960

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2670 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

gtggaggatt	tgttgtctta	tataggaagt	atcagctatc	cgaacagcaa	gcgaagcatc	60
tggtcgggat	ggcgcatag	ctttgctctg	attttgagga	gtggtagccg	acgaggtgtc	120
ggaactaacc	aaactgccc	gcgtaggcgt	aagacagcca	acgtgatagc	ctccgtcgtc	180
tacggcaaac	cggccaggcc	gtagatagc	acgtattcag	agtatcagaa	aggataggcc	240
tgaccccggt	tcgaagtctc	cgttagagac	ggagcgagag	ctgggtcgct	atatccggat	300
gtgctgatac	cgaaagctca	tcactygctg	atcctgcagt	gacgtacgtt	tgtctggctc	360
gcaagcccaa	atgtgcagac	tgtggcatag	cacattctgc	cgcactact	cgaaagtttt	420
taagaagaac	agtacagccc	tccgaaaaaa	ggggaatgat	aaggcctggt	gtgcaaataa	480
tatccgcaca	atgctccata	ccttaattcc	ggaggcaata	tgaatcgaga	aagctttttc	540

tccctgcttg	tctcttattt	gctctccgc	tccatctgca	aagcatcgct	ccatgcaaca	600
acatggcaga	tacgacttgt	atatccgatt	cggccaaatg	tttcctcctg	ccatcggtgt	660
ttaccatgta	aaaccgatga	aaaacaattg	cggcattccc	tgctcttgt	agctgcttct	720
ctccttactt	tcaactggat	gacaatatcc	gagagcttcg	ctttaccggt	gccgggagct	780
ttcaaccaag	atagacaacg	tcagtcagct	cgcttcctct	atggcacagc	tttgatgagg	840
ggattcggct	ataagggacg	cagcaaatca	tggggaaaaa	tggttggtcg	gatgccttgg	900
gtatggcact	tatgggtgga	atggtcaatg	cggaaaatat	tcgttcggac	ggttgcgctc	960
ggatggaact	gctgccaatt	atacccatca	ggacatacgg	caacagcttt	cgctgcgcc	1020
acacttttta	tctcgaatac	ggctcccgaa	gcccttggtg	tagcgcggca	ggctatacgt	1080
agcctccctt	acggggatca	gccgtatcgt	gaacaatcgg	cattgggcag	cgatgtgctt	1140
tgcgagactg	ccgtagggat	attggtcgga	gaattagcta	ttggatcagc	gatctgatct	1200
tccgcgatcc	tacgggctac	aactaaagct	gaccaagaaa	caggaaggaa	ctctggagag	1260
catggtcatt	tctcttctac	cgggaataga	tacatcaacc	ggcagatgga	ctttgaaggc	1320
aagcagtaga	acgtaccgac	gctttcggca	tgaacctgaa	gacgaccttc	aaccgagctt	1380
tgctcgctgg	gtacgaatcg	gatcgcaatt	cagcgtttcg	aagagaagca	gaaagtcctt	1440
acgcgagaaa	ggccggcaaa	agttttcgta	ctccggcgat	ctcactcgga	ctttctgccg	1500
gtgtagaatg	gcatccatgc	agagagcatc	cgtctgggca	gagatcctgc	cctcaatact	1560
gtttcgtaag	actttaccaa	tgcccaagac	gagccggacg	aaatgtcttc	gaaattaacc	1620
gacgctcgag	tttccaaccg	gcgttccaag	tgggagtagc	atacagggtat	ccgatcacat	1680
gggtatagaa	gctcatgcag	ggtatcagct	tggcgggcag	tataccatct	tatggaggaa	1740
acatccactt	ggtcgatcat	caaaagagag	ctaccgtacc	ttaccgggga	tttgagtttg	1800
cagtcggact	acattctatc	ctttccgctg	acgatcgagt	ggaaatggct	gtacagagtt	1860
caaagcggtg	agcacatcgg	gcacctcgcg	caagcgaacg	atcctctttc	cccggactga	1920
cgaatctcgc	accgacgtgt	gtgcgctgcg	atatattcca	caacatgccca	aagacttcgc	1980
tctgatagta	agggtgtctt	ttccttgcca	ccagatggaa	actcatctgg	tccccacgca	2040
atacgcattt	ctctatacga	gcgaacggcc	gaggcgctgc	aggcgaggta	cccgatatcaa	2100
ctcctctcct	ccggcggaat	tttaccgaaa	cgatcctgca	tacggcgccg	gaatgctcga	2160
gctcctcgtc	cgtgggagaga	ttgtccaact	cccagataaag	aagaagcggt	ccgaatccaa	2220
cggcacatat	tcttcgggga	aggaaagttc	caaacgctct	cgaccgttgt	ctccactaca	2280
aaccgggaag	ctgaagggaat	agctcttggc	tctctgcata	aagatcggca	aactcatccg	2340
ctttgagttc	ggaacggctt	cattaaaaac	cttactatac	gtctcatatc	ccaaatcggc	2400
atgaatccgc	tctgctcggc	accgagtaca	ttgpcggcac	cacgtatatc	aaatcctgaa	2460
gagcaatgcg	aataaccgctg	ccgaggtcgc	tgaagtctct	atggcttgga	gccgacggcg	2520
cgaatcgctg	ctcaggacac	tgagcggcga	ctcaaaagat	agcaaaaaggc	tttctgttg	2580
ctccgtccca	cacgttccga	agctggtgca	actnactcag	accgtatcgg	tgggcattcg	2640
tcaatgtaat	ggtattggca	ttgggcacat				2670

(2) INFORMATION FOR SEQ ID NO:961

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

tggcgagccg	atcncggcnag	agaatatcgg	taagcgagtt	gctgccgatt	cgataccggc	60
cttcaccgca	ggaatgcttc	tgtactgaac	acgctgggtg	tgtactcaaa	ggactggttcg	120
tccctgtagg	aataggtctt	atccttgtgt	cgttttcggt	cttttcggcc	ttatattaga	180
gctgtttgca	gacggtagct	ggcacatgct	cctttgactt	cggactggat	ttctattcct	240
tcttgatgat	actctgtgcc	acgatctccg	tattttattat	agtagccgtc	ccggtatggc	300
catcgttttc	agacatcaag	ggcaggggag	aaacgggatt	attctgcagg	tctcaaatgg	360
ctgggcttga	ccatttggct	tgctgccgct	gtctattggc	cgtagtcttc	atattgataa	420

cccgtgaact	gggtttgaat	tcttccctcca	tcgccattca	gtatgatgtc	agaaatgcct	480
aaaaaacatt	aggttccttt	taggacaatc	catagtaaag	gtttttgcgt	ttttgttcaa	540
tcttcgtttt	agaatccttg	cttttgaaaa	agaataacat	cagctattat	agtatgagcg	600
ataattgtca	tttgactgag	aaatcatttc	gaagtgtgtc	ctcccgaagg	attccgtcct	660
gactttattt	ttccgaattt	gtctccaaac	tggtattgga	tactcctttc	tattgtcctt	720
ttcgccggat	ggggttggtg	aagtataaga	gggccggcat	ggctcccagc	acctatttta	780
cgacgtaatg	gcacgattcc	ccgaaggcgt	tcagagagca	tgctccggtg	ggtgaatcca	840
aactacaatg	tatatgataa	tta				863

(2) INFORMATION FOR SEQ ID NO:962

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

ttattcaaaa	agttcctcat	tttcggacag	atgctgttct	tgacttgcta	atagtgttct	60
tctcactccc	ttattgacag	atcattcgcg	tgatctccct	cgaataggga	ggtaaccaag	120
cagtactacg	taccggagga	aagacttggg	gcatgaact	gaccgatctg	ctttttagcc	180
ggccggatag	tgggcacagc	tactcgaccg	gttgttccta	ctccttgaaa	aaattgcoga	240
aagcagctct	ttcagccagc	cgattcggag	tatgaccaat	cggaggagac	caatatatgg	300
agttggagca	gatctatcac	tatcgcaata	tgctgaacag	gctagaggac	tggtcgaatc	360
ctatgccatg	gatatgtcag	ttcgttctgc	agtcttctgt	tgcaaggatt	ggtatccgga	420
gtgagcatcc	cattcgaggg	aaacctctgg	tcggcctgca	aatcatggga	atagatcaaa	480
cgcgatcttt	gatttcaaac	atctgatcat	tctctctgtc	aacgagggta	aactcccatg	540
cgtgtctatg	aaacgacaat	gataccctac	acattgcgca	gagggtatga	cttcggtcaa	600
tgaggtaaac	gaagccactc	aatctatgat				630

(2) INFORMATION FOR SEQ ID NO:963

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 891 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

aatgaaaact	gcagaagttc	atcaggatca	gacgatattt	caattgctta	tcatgagtgt	60
gtgattgtag	ttattacgga	agactyaaaa	gaaaaagcct	tcgacggcac	cgaatcccga	120
atcgaaaggc	ttatcccaa	ttattgtgca	tgtatcagtt	gtcggataaa	gtcatactgt	180
aaacgccgat	acgcgcgtct	tatttttttt	tccgagctgt	agtttgacgc	cggacgggaa	240
catgaattat	tcagctggga	ggtgtacagc	gaattggaag	ctcccgaac	ctgagcttca	300
caggcagcag	tacgagaaca	aggtccttgg	tgatataagg	cttccctcgg	gagtcttctc	360
cgtattgttc	ttgatattgct	ccatcagcag	gcactgatat	tgctaaaccg	atactcccg	420
ttcttaattg	tgtatatggt	cataggaatg	ccgtgcgagg	ctgcatcagc	tcggtctgtt	480
cttgctcgaa	aagtttctca	ccgaatcctg	cggcaagagc	aacaagtagg	agggcggacc	540
agcatcaagc	cctcagatgg	cttcgaagca	ctgatattga	actgtgctca	ccgatttgcc	600
aagccaaaga	ggaagacaga	ttgctcgtga	aagcatcgta	aactgtctct	tactgattgt	660
cagttgcgtc	atcacccctg	ccggaccttc	acacaagtga	gagaatcatt	ctcctgcaac	720
aggtgggata	tttgaggttc	ttgatattgat	tgacctgata	ggattcgctc	gtgtttacga	780
atgttctgta	gctgttggtg	tggaatcggc	cgtaaccttg	tagctatnga	agaggccatc	840
tgcgtattgt	cacgctgagc	acaactccc	taccctgctg	cgagtcacat	a	891

(2) INFORMATION FOR SEQ ID NO:964

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

cgatccggca	gccggatcgg	tgctggccat	agccgaagct	ctgaccaatt	cgtctttgct	60
ccgcttcgta	atggtatcga	gggtgtgagc	ctgtcggcaa	ctggatgtgg	ccctgccgta	120
acgaaggcga	agatgcccg	ctgtacctgc	cgtggaagcc	tgctcggact	ttgccgtcga	180
tctgggcatc	aacatccctac	cggcaaggac	tctctgtcca	tgacacagaa	atatgaggac	240
aaaaagtgct	gagtcccgg	acggtgatta	tcagtgccgc	agccgaagt	acagcattcg	300
tcgcatcgtc	agccccgtcc	tcagccatat	agccgctacc	gcttctacta	tatcgatttc	360
agcttctgcc	cgttctcatt	gggaggatcg	gctttgccc	gagcttgggt	actatcgggt	420
atgaagtccc	cactgtacgt	gtccggaata	cttccgcgat	gcgttcaata	ccgtacagga	480
actcattgac	agggtctggt	tctggccgga	cacgacatat	ccgcaggcgg	tctgattacg	540
ctcttctgga	aatgtgcttt	gccaatgtag	taggcggtct	ggaggtggat	tgataacct	600
cgtggaagac	gacctgatca	aagtcctctt	tgccgaaacc	cgggtatcct	cattcaggta	660
aaggaccgca	aagccgttga	taagatctga	ccgatgccgg	catcggtttc	ctcccgatag	720
ccaagccgac	ccaagccgac	acctcttgat	acataaagac	ggagccgaat	acctgttcgg	780
tatcaccaca	tgcgcgacgt	ttggtatgag	tcgtcctacc	tgctggactg	cttcagagtg	840
gcaatacctt	ggccggcaac	cgcttcgaga	actataagga	acaccggtcg	tatatcactt	900
ccaagcaat	ttacgggtga	tctgaagcga	tggattggat	cccgatcgaa	agacggcatt	960
cggcattc						968

(2) INFORMATION FOR SEQ ID NO:965

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 725 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...725
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

```
ccattgtgta atctccccct tccatcacat gcttttggcc atccacgac gcaccttgtg      60
atcgagattg cagtcaaggg tgtccctcat actaaagagg catcgaagaa aggtgctgtt      120
ctgaaaagca aacgagatct gaatccttat cctgtttttc aaacgatatg gaagcatcgc      180
cggcacgtgg catcaggccc ccacttata gtagattgta tagctgaggc attctccggt      240
cctgcgaaat cgttgagatg gggttgctga gcttgcaatg atatagagg gatgttatga      300
tgtatagagt cgtgaggatg atgactatgc agttgaatgg attcgtttct tgcttatatt      360
ntgttttgc ttcattttct cttttctttt ctccaatgat tcaaatatag gcaataagcg      420
gttagtagaa ataaaaggag gagcctgtgc cagacctcct cctcaaaaac gaatagactc      480
tttagtagtt ttgggtgtaa atactcccaa agttattttt tattcgaatt atagatttcc      540
tgagtttttc gattagcttt tcaccacgaa gatctcgctc tataataggc cgtcaggacc      600
caacagtatg acttgcgga taccttgnat gccatactat ccgtagccac attcttagca      660
tcgatatctg aggccatacc acgttgagct tctttgcttc agtgatcttc atttatccaa      720
actac                                           725
```

(2) INFORMATION FOR SEQ ID NO:966

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 821 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...821
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

```
cacgctatgg ccatagactc gcgagaagac tttgtgtctga cggntccgca atgcaacgat      60
ccgtatgac agcgtggcat agccgatcag cagcagcagg agcttaagaa accctgctct      120
tcgcccacgg tacagaagat aaagtcctat cctgctcggg cacatatatt agtttggctc      180
gtgtcccttt caggaacctt tgcccataaa tccgcccag ccatagctc tcttgactg      240
gtctaattgt atcctcctcc ccgcaaatcg tctctattc ccaaggcaac cctgtacgca      300
tctgctgggt gggctgcac actttgttga atacatagtc cacgaataga agtagccac      360
cgaacacaag gcgaaaacgg ctatcagcgc atcgacagta cataccgctt gatggccatt      420
gacaaagccc atacgatcaa tctgccaaga gaccgtatgc cagaggaca aaatccaccg      480
acacgaagta gacagcata tggctacggc ataggtgaca gcagtaagcc ctgccgccag      540
acatagaagc gtcctcgctc cttggtatag atccgcacga ggaagaatct atcacaaaag      600
ccatcgagac cacagaccat tcggcggtcat ccgtatgccc caccacacat cgccctgcaa      660
cttcagagcc gtgacgaaaa agaggaggca cagaaggcaa tgccgatgaa tacgccggac      720
attccctcac gataggggca aggaaaaaag ctatatagac gagggcagac cccgtttcgt      780
ctgacaggat aagcagtagc ggatgaggat aatggcaaaa g                                           821
```

(2) INFORMATION FOR SEQ ID NO:967

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 472 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...472
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

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ttgaaagaaa cggaaggaaa aatctcgcag acttctttat ttgagcgatc ggctccgggt      60
ttgcctgctt tgatgtaggc gttcatggat ttaatgtctt cgggttgtag cggctacggg      120
cgcagcggta cagctccgtg aagggattgc atcgacgacg ctctgcaaaa ggtcgctttg      180
ggaggggaatg cctttgtggc gaagtactgc tcatagggtg attcgacgaa agctgtggta      240
ggcccatgcc acggcggtcg aggagatagc cgtcggccag ctccaccgga gtgcgaaacc      300
atcgccacga cgaagatcgg aaggggcagg acgtgccacc acaacttttt gtcagccgag      360
aggggtgatag gcacgagatt gcgatagtcg cccgcgtctt gtaaagtatg atcggagcca      420
atgccatagc cggcgtcatg gtgctactcc atcggggcca ttgccctcct nt              472

```

(2) INFORMATION FOR SEQ ID NO:968

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1342 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1342
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

```

agttcagcac cgatttcgtc cagccggaca ccgcttttga aagcgtacgt gctggagtat      60
ctcagcacgc aacttcaaat ccggacgttc tatcttgaac aggtagcacc ggccatacga      120
gtgaccaacc ggtcctccat cccgttaggt ctacaggagg tttgtccgac gtcaagacta      180
tctgtttgcc aagcattaga ggtgattgaa cacttggaag aaagctaatt gcgttttctt      240
cttgcgatca accattggat gtcacgatg atcagtagat ccacttgctg gtagatgcga      300
tgaagtcatt gatcgtcccc atacgggctg ccgtagtga ctgatctcga acaaatgact      360
cgatacgtat agtactttca accgggggtg cactctctga caggaaggcc caaggcatgg      420
cacaagtgcg tcttgcccac acggaagctc catatataaa gaatggattc atcggcgtat      480
tgcccgggct gcggcgatgg cttcagccac tgagcgagct acatagttgc attcgctctg      540
tagaagtgtg ggaaattgag cctgctattg agctgcgtgt cgaaatccgt gcttcgctat      600
gggtggctgc attgggcatg tgccctgtgta gcaaattaca tcgaactgtt cggctgcctg      660

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tccaccgtcg	gcacaaccgg	ccaatgcacc	gtgccgggat	atttgggcga	actgttgtct	720
acaagggcat	tatacgtaat	gatgcgttgg	gacctataac	acgccccaac	accgtacgca	780
gctgtctacg	aaattgccct	ccaaaaactc	acagaagaac	tgactcggca	ctttaaggta	840
agcgtatcgc	cctcgataga	taccggtatg	ataggcaaga	acatgtacgg	tatgtctgct	900
catccacaat	atcctgaagg	atgcgaagac	agcgtcccat	atttcattta	cattgggtcga	960
gtggtagttc	atctaaaaaa	tatcgttttg	agagcagtcg	ttcattgctc	ttttggggat	1020
agcaaaggtc	aaacaaaaga	gtaaaaaaac	aatcgacaaa	aagtgtagta	taattcagtg	1080
aatcgtatct	atattgtttt	cagatgggta	taaccttgag	atataaaagc	gaaggaaaca	1140
acgctattcc	actgcattcc	agacacttat	acgaaaccga	ccaaggcgcg	accgagttat	1200
caacacccaa	gacagagcct	cgattagttg	tgtacaaaga	ggttgcgagg	aaggagagaa	1260
aaatttttca	acagatcttt	atttacaatg	aatcgaaata	aggaaaatct	ncggtgctcc	1320
ctaaatcagg	atgtatccaa	tc				1342

(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 852 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...852

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

atcttcaatc	cgagaaaagt	gggctcagtc	aatcctgaag	caatcttcag	ccatcacgat	60
agaccgtgta	gggtataagaa	cgaacagcct	gctccggcat	ctcctcagta	gcgactatct	120
cctgcagagc	ttctacctct	gcctctatgc	gtctgtctcc	tcaaaccggg	gcaacgaaag	180
tcaatgattc	caacactctt	cgttcgyaat	aatctcttga	gctgctactt	ccaatggcat	240
aataacatgg	gtaaaaccag	ccaaagcagt	gagcagactc	ttttgaagta	gttcgtttca	300
tagttatctc	cttttttaat	tagtatctca	tcttggtgct	tctttcgcc	cttaaataag	360
gtgatacaca	aagataaaaa	tatatctcgc	cgcaagctat	tcttcaacct	aaaaagtttg	420
tatgacgcag	gaatcggaat	ctttttcttc	gacaaaattg	aagtcaatca	ggagcaagga	480
ggttctcttt	aggtcaaaaag	actgatgcta	cttgctttta	taatgtttca	ttgcttccgc	540
atatattggc	gaatggcagc	tatccgattg	gcacgcctcg	gatgcgtatc	agaaactcta	600
cccgcccggt	accttgggca	gccatctttt	gccaaaagta	attgccgnat	tcgggttata	660
accggccatc	gccatgaaga	caagtctatt	ttgtcggcct	catactcctg	tttccgattg	720
tagggtagcc	gtaatagcac	ttgtgatcca	atgccatagg	cctgcccgat	gaccgtttgc	780
agtgtgctga	cttggtggag	actgctgcgc	ccagtatatt	accacccatt	tgggtagata	840
ttcctgactg	at					852

(2) INFORMATION FOR SEQ ID NO:970

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 678 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

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gcgttatctc tatcatagtg gatattcgga gcatccgct gccggcacct tccctgctac      60
cgtttgaccg gacatccgaa gttcagatcg atcaagatcg gaccggccga ttcgcatagt      120
cgggcaagcc tctaccatcg aagccaaatc ccgtccgtat atctgtacag ccatcgggcg      180
ttccgattca tctatgccat ttttcggaat gtgccggcta cttgacgaat cagggcatcg      240
gcactagaaa ttcggaataa accagatcgg caccgaaactg cttgcacatg atccgaaggc      300
tacatccgtc acatcctcca tcggagcgag tagcaaaggc tctccccgag gtctatggca      360
cctattttca tgctccttgg gctatggctt gtccgtgcgc agagccgctt gaatatcggc      420
acatacgttt tcctctccca aagctctacg atgcctgcag tggcaagttc ttcgtggacg      480
tccttgcgca accggagagg acgatgctga ccccttcttt ccggctcatt ttgatcaggt      540
ttccagattg tgcacccctg tcgaatccat aaacggcaca tgccgcatct gataatccga      600
acatcgggat ggtcgcccaa tgtgttcatt atctcttgaa tctgttcgcg ataccaaaga      660
agaaaggccc ttcgattt

```

(2) INFORMATION FOR SEQ ID NO:971

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 709 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...709

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

```

gcgccccaat gccaaagatc ggaggggaaa ctttcggcct gaacgtaatg gtgaagagga      60
cagggatcag accgaaaaaa atgaagactg cgatttcgcc aatccatgat aggccaaagg      120
ataaggaccg gcactatacg acaaagccca atggctacaa cgactcccac gaccagcaac      180
caccagttgc taatggacaa agcagaaaac cgctaaagcc gagcagaaaa agaaatgaga      240
aaagactgcg agaacctgtc gctccgacaa ccaacctttg gagatcccac gttcaagcct      300
acacgctgat cggatatcgc acccttctta tagtcgaacc aatggtggct atattgctga      360
ccgtttgggc agacaccgct acgatcaaag ccaagcggcc tgtggccagc gaaaattgcc      420
gtcagctata gcataagcaa tgctacaacg acaggactga cagatgccgg cagggtatga      480
ggccgtagca agcagagcaa gctttgagac gcgggggtga tccgttattg ctcatctgaa      540
aaagacttcc cggtagcgga cgcataattat aggaagaagc catcacggtc catatgctcc      600
ggccgaacga atagccagat aatcgccgcg tttgagtcgg gcatgagcaa ttcacgctcg      660
aatacatcgc tggatcgcag attgggcgac aacatcgatt tctctgcg

```

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1058 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1058

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

actcatggaa	atgccgactg	tttgggggata	gggcaggagac	tcgacgtcat	actctaacag	60
cccgattgaa	ccaatacatc	ttcgcaggga	ttatgtacag	tctatcatgt	agttcggctg	120
tagcagattc	aactattaga	tcgcttgaga	agtcctgacc	acatacgcac	ctaacaaggg	180
attctcggct	ttcttagagg	aagcagagcc	acccaatatg	ccgtttatgt	agaaggcccc	240
tgtccccgtc	agaattttat	gaatattttac	cttattcttt	atatcacaat	ctctgactgt	300
tggtggcgaa	atgttgctat	catccattat	caataactaat	tctttgatac	gtattcgaaa	360
ttcaacttta	atttgcttgg	cgaccctgca	ctaacattat	ggctcatggc	atggagggtta	420
gtaattgtat	tacactacca	acaacacccat	tataagcagt	ccgataacaa	taaaaaatgg	480
tggtgccta	aaataccgga	aaaaggagtt	ttgcatttta	ctaataatgg	ctccatacag	540
tcatgtccgg	aggaactctg	gaaataggca	atcaggctaa	aatatccgag	agaccggtgc	600
taacccccacc	tttattaccg	tttacggcga	tggtcttcga	ttaacaagca	ggtagagata	660
gacaatatag	accgacttaa	cttgtttcta	cgcattcggg	catgccc aaa	tttcattttg	720
acagtgtgaa	attcacagtg	ccccgctgta	tacaacgaac	tgtattgtgg	agataagcaa	780
ttgcaattta	ccaatcgaag	tgacattatt	tcaaagaatt	gtgacctaa	cgtgaaaaca	840
gtatgtttag	cagttcgggg	ataacggtat	tcaagcctat	ggtacaagct	ccatcaccgg	900
attatctaca	aaagcaaaga	ttaccgacaa	tctttttttg	cgacaggaaa	cttcgcctac	960
catatcacia	acacgccagg	ttaacagcaa	cctccaatgc	tgccatcaag	ttagacaata	1020
ttcctgagtt	taccattttcc	ggaataaaaat	agtcaatg			1058

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

ggcctcccga	ggcaagagcg	ccaatacggc	cgtgatgtcc	ttgtcattgc	catgccgaag	60
acgatacgca	gctgtcggta	agtctgtcgt	ctcagttgtc	ggtgatcaga	cggaatccgt	120
cttcgtttgt	tccggtatcg	catacgaccg	tggctgctcg	gccaaactgt	gccaacggcc	180
aaacagccct	gacattccgt	aacgtgggca	aatccttcac	ggacgtgttc	cgaagaaaga	240
ttcagccgca	tcgtttggaa	aggacctcca	cggcacagag	aatcgtacgc	gcgtctcctc	300
ctgagccaag	ccggtcagtt	cgccacgaac	cgatccatag	tccgtgtttg	gtatgtatag	360
caaccgtttt	ctaattgtcg	ggaaatgatt	accccatttc	ttgagcaaag	acaatatccg	420
ttctttcctc	atcggctttg	tctgaaaggc	atggcgcaca	cctcctcggc	tcggccgacc	480
acaacgggga	tccggacttg	atgatcccg	ccttttcgaa	gctatcttct		530

(2) INFORMATION FOR SEQ ID NO:974

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 712 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

```

ggcggcaggc atccccacgg ggcgacgct cggcaggacg atagtcccg c attcgacgag      60
cctacaccga ttccacttc ggagcaaact attccgaact ctccactccg cgaatcttgg      120
atttcttgat ggcaaaactc tcttctcgtg atagagcgtg gtgcccaccg ttgccactac      180
caccttttgt cctgcaccac attgggcgca ccgcagacga ttgcaaagg cgcacccgcc      240
cccactctac cgtgggtgata tgcaaatgat ccgaattcgg gtgttcctca caagcagaac      300
atggccgatg accaaacctc gcaagcctcc ccgaatcgtt tcgtctcttc tacaccgccg      360
gtctccagac cgatggaagt gagcgtgtcg gcattctctt cggagagagg gtgcagggca      420
ggtaactcaa gagccatttg ttgagatatt catctttgtt actccttagt tgtatatgtg      480
cttcagagac catgggtcag gtctcaaacg cgattattat atgtaagccc acaaatttac      540
gtttttctcg gggagtgttt gttttatggt cgtcttgccg tggtttgccc ctccgagtgc      600
tctgcttttc gttctcccaa agattctggc tttcctttcc ggtttggaaa aaattcgggt      660
gtatttcngg cctgtaaaac gtggttttga ggaaatattt tttggttttg gc              712

```

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

```

tgctttctcc tctgaaaaca cagtttagagc aacaagtcaa ttggagtcca ccgtcttcgg      60
ctcttatggc agtagcgagt tctttatcaa cgttttctcg gattcctcat attggcaggg      120
atcatcctgg accgcattgg cgtgcgttca ctgccatttt atccggcagt ttgatgcttt      180
tgggtgccct tattaagtat atgccttgag tgaagtcttc aatggcggcg gcttcggcta      240
cgatagctca attccttttc tatgggtttc ccgccatctg ccaagctggc ctgttcgggt      300
ttgctatttt cggatgtggc tgtgaaatgg ccggcgtaac cgttcccggt ctatcgtgaa      360
gtggttccat ggcaaagagt tggctttggc cagggacttg agatggctat tgcccgtttg      420

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ggagtcttcg ccgtgttctg gcttcaccta tcatttcaaa gcagttcgaa ggtacgcttc
agagcggttca gtaccgggtta tttccgttac ggcactcctt tcacg

480
527

(2) INFORMATION FOR SEQ ID NO:976

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 747 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

taatcacccg	agccacatcc	ggcatcggtg	cagcttcggc	tcgccgcttg	catcgctcga	60
ttataacctt	atcatcacgg	gacgacgctc	cgaacgttgc	aaaacattgc	cgatgaaatc	120
agagctgaat	accctgtcga	aatcctccgc	tctctttcga	tgcccgcaat	cgcgaagaag	180
tagaagccca	tttggggaatt	tgctgatcc	ttggcaggcc	gtttccgtcc	tcgtgaataa	240
tgccgcttgg	cagcgggact	cgaccccata	cagtcgggtg	acattgaaga	ctggaacgta	300
tgatagacac	caatatcaaa	ggactcctct	acgtaactcg	cacatcagcc	cgggtatgat	360
agcccgaaag	gccggccata	tcataaatat	cggctctattg	ccggcaagga	agtttactct	420
aacggcaatg	tctattgtgc	ccgaagcatg	ccgtagatgc	tctttcgaaa	gcgatgcgta	480
tagatatgct	ccttatggca	tcaaagtcac	acagatttgt	cccgagcag	tggagacggg	540
ttctcgctgg	tgcgcttcca	tgatgatcag	gccaaggccg	atgccgtgac	aagggcttca	600
ctcctctctg	tgcgaacgac	atagcggagt	gtattgcgcc	gtactgaacc	tgcttgataa	660
tatctgtatc	aacgatattg	tggtcagccg	aagcgcagcc	ggcagcggac	acttttcaaa	720
caagttgatc	acaaaaggcc	aaacgat				747

(2) INFORMATION FOR SEQ ID NO:977

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 670 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

atgatgcagg	acgcgattgt	cggctgtttc	ttgctccctg	catgatgcag	acgcgattgt	60
cggctgtttc	ttgctccctg	catgatgcag	gacgcgatgt	cggctgtttc	ttgcttctctg	120
cacgatgcag	gacgcgattg	tcagctgttc	ttgcttctctg	cacgatgcag	gacgcgattg	180

tcagctgatt	cttgctcctg	cacgatgcag	gacgcgattg	tcagttgatt	cttgcttcct	240
gcacgtgcag	gacgcgattg	tcggctgatt	cttgcttcct	gcacgatgca	ggaccgattg	300
tcagctgatt	ctgctcccat	caatgcgcta	actatcagct	attgcaacta	ttttatagga	360
cttttattga	agtcttttgc	cgcagagctg	atcttaagtg	tttttcagat	tacttgaggt	420
ttgcagagag	atcgcatgaa	gtctcctttc	ttcgctcaaat	caatgcttgt	gtctgtcttg	480
atcgatatga	gaggtgggaa	ggttattgtg	caacagtctc	aaaatgtgaa	gacgctcgga	540
tcggtcaaat	gtttcgacac	gattactgat	ttttgacctt	tctgagtaca	actttttccc	600
gtacacatca	gaaatgatgg	tgtacagatc	ggatgaaagc	cgtttgccga	ttgtggtagc	660
tttcagccgt						670

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2736 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2736

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

aaaagagacg	acaaaaatta	ctgcaatagc	cataattgat	ttatggctta	aaaagggggt	60
gttgatgtac	attccgtact	atgggcgcaa	agataatcca	atcccaattt	tgccgacctc	120
taaaacgctt	tgagaatgat	atattattat	acgtttttgga	agcttcttcg	atcaggagag	180
gattgcggtc	aggcgtttgc	gaggttgtgt	ttgacggggc	gaaaatgccg	agtggttttt	240
gttaatttgt	tcattcctcaa	tcattaacag	cttcgcttat	gaaaaagata	ttatgacggt	300
gatactcatt	tgtattttat	cctcttttcg	tgtggcgcaa	gtggagtgcc	acgaatcgat	360
gatatgagag	gaatgcgtat	ggacaccgtg	tcaagaaaat	aaaggattat	gcacaacggc	420
ggttctttta	taaggtgggt	ttgtggaaga	tacctgaag	cgagaaaaga	aaaccgaggc	480
gcagtgtgtg	tggagatcgg	acggcacggc	agcagcttca	aggatttgta	tcagttagct	540
gggattcttt	gaacgatgcc	gttaccggcg	gaaaagggtc	gatgatgggc	tattcactga	600
gggtgccggg	ttggtgaaaa	agataaagt	gagaatatcc	tgctgaaagg	gtatcctgaa	660
ggagcggacc	ggcatcaaca	agaggtccat	tgacaggtcg	gtatgagtat	gaatgtccgt	720
cggcgtcttt	cgattgcaga	tcggggaaga	gaccgaagag	atcatggaat	acacttgccg	780
aaagccacct	gccaccacag	cggacgggat	tatacggtct	ggtatacccg	aggtattgcc	840
ctctcggatg	ggcncgtaca	tttttcgggg	attgcccggc	ctattgtggc	catcgcttcg	900
gatgatgggg	aatatgcatt	cgaacttaat	gaatgcaggg	ggagattact	ttcccctcac	960
ctatatctct	gtacgacaaa	aggtgcaaaa	gtattcgcg	gaagaagtac	gcaagattat	1020
ccgaaacatt	cggagaatta	ttccgagacc	atcatcaatc	agggaagatt	caggcttaga	1080
atccggagga	tattcagcgt	atcagaaatt	tgccgtacaa	tccttgaga	aagaatgaaa	1140
acaaataaaa	cactcagcat	gaaaaggaca	cttttgtcct	cgcatcctgc	ttttttatga	1200
gtatgagctt	catacaggca	caggtccacg	tatcgtgggc	gcagaaggga	tgccggtaga	1260
tactgtgccc	aagaggtgga	ggactatacc	aaacggcgat	ttttttacaa	agtccttttt	1320
gtgaagatac	cacgaggcga	gacaaaagaa	cccaagcaca	gtgtgtattg	gaatagggca	1380
gcgaggaggt	tgcttcaaa	acttttacga	gtatgcagcg	gctcggtgaa	tgatgccgta	1440
gctcggaaga	aagggaactg	tatggagatc	tttcgaaagc	ttatgattac	gtcaagaaga	1500
cccaatggcg	gactcccgtc	ttaaaggcta	tccatcgga	caagattatc	atcaatacgg	1560
agatccgaag	tcggttctta	tgaatacgg	tgcccgctgc	cgtctttcga	ttggcagtcg	1620
gggaagagac	caaggagatc	atggaataca	cttgccgaaa	ggccactgcc	accacagcgg	1680
acgggattat	actgcttggt	atgccgagga	tattgcctct	cggatggggc	gtacattttt	1740
cggggattgc	ccggcctgat	cgtcctatcg	gttcggatga	cggagagtag	gtattcgaat	1800
tgaacggaat	gcagagatta	catttcctgc	tccgatttat	ctcaagaaaa	atgcctttac	1860
gaagtccgct	cgctggaaga	gatgcgcaaa	acgattcgta	atatccacga	gattatgccg	1920
aagtcgtggc	caattcgccg	gcttttgtca	attccccgat	cggtagact	tttctcatct	1980
gccacctcag	ccgtttaatc	cattggaggg	gaataaagca	tgatgaatag	ggctgtcact	2040

tcgatttttg	cgtattttgg	ctgtgctg	gggggctgtt	gcctgtcgtt	gctcaggaag	2100
cgaccggcaa	atgcttgccg	gtcgtgtgat	agatgccgag	agccaggagc	ctcttgcg	2160
gcagtgtgcc	aactcatgga	tgcctccggc	aaaccgcttg	ccttctcctc	tcgaaagccg	2220
acggctcgtt	ctctctggag	aaaaaagccg	gcggaaactc	cttagcgtaa	gatatatggg	2280
gtataggaag	atgagcaaag	ccacgatg	gctgctcctc	cgctgctttt	cgctttgg	2340
ccgtccgacg	tcagctcaag	gaagtgggtg	tacgcgcgga	accggtagcg	aagctgggag	2400
aacgattgcc	tattcggctg	cggttttcgt	ggggccggac	gatcggtatc	ggccgatctg	2460
ctgcgcgaaat	tgcggggaat	agaggtctcg	gcaaaccggc	cgtcaaatat	cagggcgaa	2520
ctatcacaca	tatgtatatc	gaaggcgtga	catgctgcaa	aaccgctaca	atctggcctc	2580
ccggaacatg	cctcaagggc	ggtgaaaaca	gtggaggtgt	tggaggggca	tcagcacatc	2640
aaaacgtg	ggagacagt	ccggagaaaa	gggctgcact	caatatcaaa	ctccaagaac	2700
gcttccaag	tgcgtccctt	ccngaanaag	ttaacg			2736

(2) INFORMATION FOR SEQ ID NO:979

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 830 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

gtgggtcgatg	ataacaaaaca	tgtactgacg	gctttgaaat	tgctcctgag	gggagtttcg	60
agaccgtgac	gctcctacct	tcccccaaga	cactgcttcc	acgatcgtag	aggtgcatcc	120
ggatgtactc	ctgctggata	tgaattttct	accggcatca	atacgggtaa	tgaaggatta	180
tattggcttg	atcaggccgt	agccgtttcc	ctgacctccc	tgtggtactc	tttaccgctt	240
atgcgacatt	cgtctggcag	tggaagcctt	gaagcgtgga	gcaagcgatt	tcgtgtcaag	300
ccgtggaaca	acaccgagct	gttggagtcg	cttcgcatgg	cgagaataag	gccgcaagca	360
ctcaagtga	ggctacacct	aaagaaggcg	atcgggtattt	ctcagcaaaa	gcaaggccat	420
gtgtgaggtg	ttggagctgg	cggtcgtatc	ggcgatactg	cagcccatgt	cctcattacg	480
ggtgagaatg	taccggcaag	ggcgttttag	ccgagtatat	ccatgcccg	tctcctcgtg	540
ccggcagccg	atgctgactg	tggatatggg	agctttgagc	gagacgcttt	cgagagcgaa	600
ctgttcggcc	atgtgaaaag	agcctttacc	gatgccaaag	cgatcgcgcc	ggcaagttcg	660
agacggcgtc	cggcggcacg	atcttctgga	cgagattggc	aatctgagcc	ttgccttgca	720
agccaagtgt	ttggcgtact	acagcaaaaa	gtggtgacct	gtgtgggcag	caatacaccg	780
atcctgtgga	tgttcgtgtc	atctctgcca	cgaatagcga	tttgccttc		830

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2389 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2389

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

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acggatcgta agaaaccaga tttgaaagaa ttgatcatca accgacttgt accgaaacct      60
cttcgtccgt tatgcgccac atatctcggt tgacaaaaga atcattcggt tatccggatg      120
gaccaccgct gaaaaagccc ttatcgtctt tttctctttc tcgtcaatgc tctctttcaa      180
tacaaatcaa tgagttaata ccgttggtta atcaatgtcc ggcatatctc accccaagga      240
gattgcgaag aaagaggaaa aaagcagcag atctgtaagc cgggttctgt actccggcca      300
cacgtagcca gagcgtctgt catttatctt ggccgtgctg cagcagatggc tccagcgatc      360
taccctcccg catcgggcga gccaccctac atcgccggtg tacatgatct tacaacccat      420
cagacgtacg gcatgcagcg taccgctgca tccggtaggc tcttacccca ccttctcacc      480
cttaccctcc cgtagtccgt accgaagcac agacaactca tggaaaatgg cggtcattcc      540
ttctacgctc ctttaccctc acgagtaact tcctgttagg aaggatgggc tctgcgttgc      600
ccggacgttc ctcccactct cgaaagagtg agcgacaacc gatctgctgc taatcttttc      660
tttcgtcttc tatatcttat ctatgtccac ctctacgacc ttggtcggat caagatgttc      720
attgcgatag tccactgctc taccactcgg gcagccaatt cgcggaaagc aattcccatc      780
atcgatcatc ccgaacagca acgggtattc cttcgtcccc gctttggcat atacctgcac      840
cagcggaaac tcgccgagca agggaatatt caactcctcg gcaaatctct accgccatca      900
cgcccgaaga tgtagtattt gttctgtggc attcggccgg tgtgaaccac gacatgtttt      960
ccaccaaacc gagtaccggc cattgatctt ctctccgaca aacatactga ttcctttccg      1020
agcatcagca aggctacgtc ctgccgtgtc gtcactacaa cggctccggt aatagccacg      1080
tctgtacaag tgtcagggtg atgtcgctcg ttcccggagg catatcgtca ggaagtatgc      1140
caactctccc caattggcat cgcggataag ctgtgtaggc cattgcctgc catacttccg      1200
cgccagagaa cagcattgtc cggatcacga agaatccgat agagaggatt ttcacgcccc      1260
tcacctcttc gggacgatca attcgcgtcc gtccacttct tcaagtacgg gacgtgactc      1320
ttccagtgga acatcttagg catagatggg ccgaatatgt cggcgtccaa aatcctaccc      1380
gatagccgga tttggccaga gagacggcca gattagccgt acggtactct tcccgaaccc      1440
gcctttgcct gagaaaacag caatgatatt ttcaccccgg gcagaagttt ggccggagga      1500
gcaggatatt cctgtttgcc ttgacagaga tattgccttt gatattgacg tcttcgtga      1560
tatatgtcgg atggctgatt cagctgcttt gaccactgat ttgatgaatg gatcgttgct      1620
ttgtcgaata tgagtgaaaa cgatacctta ttgccatcga ttctgaatcg tctctacca      1680
ttccggccga aaccaaactt tttcctgtcc ccggaagcga actttaccaa gggcttcgag      1740
aataagattg ggaataatg ttactatgcc atgttctgag taggttattt attaggaagg      1800
aactgcctga cttttctgga gcgattgtaa ctgcggtagc tgtcagggtc gatttcaata      1860
tcggttctcg atactcgcag tcaggttctc ccaagccaaa gctgatgtac tgatcgtag      1920
acctcgttcc agccactgtt gttcgtaata tggtcggatg cgaggatttc attctctacg      1980
catcctttgc cgtacagatc atccgttatt cgtgtacggg caggccgttg agttcgacca      2040
acgccttcgt ataggtatga ggaaagggct atccgttttc agatggatac gtccccccct      2100
ttcgagtctt tgtcatagag cgagaggaac cgcgttccgg tcagtcgctt gcctacttct      2160
tcatctgcgg atcggggaaa gtgatccata tttcggctac ctctcttcgg caaagaaccg      2220
atccaaaagc tctatatccg tccgaaggaa agctcgttgg acatcccttc ttgaagagac      2280
tctttggcac cggcccacat gcgctcctt tgatgtcgat gccgataaaa tttttctccg      2340
gaaaccgttt gccagaacct accgtatatt cttccttctt ccggaaccc      2389

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(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2698 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2698

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

cttatgggaa	tccctccgaa	tcatagtttcc	cgaggagaaaa	agaacattat	cattgcccggg	60
gattaatacc	tgcgatttat	agcgagtctg	ccggcattca	atcttctct	ttaggatctt	120
acatcacatg	tcacgttgca	gaaattttgc	atgtgtggtt	tctaaaaacg	tggcgcgtaa	180
actttttcat	tttgcccgag	aagtaaaaaa	atctcgagcc	aaaacgaaaa	aaatcatgcg	240
ccacttattc	cataaaatcg	aaccgaaatc	aaagtgtttt	aggctcgtac	tccgagacag	300
tagttcacaa	gcatacagga	gaatagcatt	gatgtggaat	caagtatctc	aattattgaga	360
gcgttcgata	ggtcaaaaga	aacactctat	ctccaaaaat	caaattttaca	tccgttttatt	420
gctgctcctt	ttgcaaagtg	gtttgacaaa	tcgtatggtg	agcaaattgc	ttagatgaaa	480
aaaaggataa	aggattagtc	tggttgcatt	tttttattta	gttttgtggc	tgtccgtata	540
tagagcagtt	gtggaagttt	cgtgacttgt	gtctaaggcc	ggtagcgggt	tttgagactt	600
cccttggggt	agggtaaaaa	cggagaagaa	aagaaaaaac	ataacagtaa	taatttttaag	660
tttaacgcaa	aagaaaagtc	tatgaaagaa	tgacgctatt	cttcctttgc	ttgctgacga	720
gcattgggtg	ggctaggccc	agaatagaac	cgtgaagggt	acagttatct	cctccgagga	780
taatagcccc	tgatcggcgc	gaatgtcgtg	gttgtcggaa	acaccactat	cgggctgcaa	840
ccgacttgga	tggcaacttc	acgcttagcg	tgcccgccaa	tgcaaaatgt	tgagagtgtc	900
ctattccggt	atgactacca	aagaggtcgc	cttcgctaatt	gtgatgaaga	togtactgga	960
tccggactct	aaggttctgg	gcaggtagtt	gtattgggtt	acggtagcgg	acagaaactc	1020
agcactgttc	cgttctctgt	gccaaaagtg	ccagcgaaaa	gctcgcgga	aagcccgtag	1080
caatatcatg	gatgcctctc	aaggtcaggt	agccggtatg	caggttagac	tacatccggt	1140
gaccctactg	ccgtcgcctc	tgtggagatc	catggtcagg	gtcgttgggg	gcaagctctg	1200
caccattgta	tatcgtggat	ggtatcaaac	ttctttggat	gttgtggcta	cgatgaatcc	1260
gaatgatatt	gaattatgtc	cgttttgaaa	gatgcttctg	caacatctat	ttatggagct	1320
cgtctgcaaa	cggagtcggt	ttcattcaaa	cgaagaaagg	taaaatgagc	gaagaggtag	1380
tattaccttt	aatgccagtt	acgggatttc	tcaaatctct	atactaagcc	ccttgataat	1440
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aaaccgttca	gaaggttaag	atatgatcct	tgccggagct	gaagatttgt	atggcaatta	1560
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tttgaaaagt	attatatggg	gtcaggtact	ttcgggtgtg	taacgatgcc	tgttattata	1920
acccttttga	tgtgaatggg	gatttagcag	atgtctatta	atgtatggag	ctaccagacc	1980
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aatgtaaatg	gtttcgcgag	attactccga	tcaaaggcct	tactttaaag	gcacaggctg	2100
gtgttgaaat	actaatactc	gcacttcttc	taagagaatg	cccaataatc	cgtatgttct	2160
actcctcttg	gggaaagaag	agaaagagct	tatcgagatg	ttagcagctc	tttacaataa	2220
cggctgaata	taagttttca	attgatgaaa	aacagatctt	acagcattga	tggggcatga	2280
atatattgaa	tatgaagggg	atgtattggg	gcactcttca	aaggatttga	aagtgataag	2340
ttgatgttac	tggccaggga	aaaaccggaa	atagtttgtc	tttgcctgaa	cacagagtcg	2400
cgaatatgac	tattttgtct	tctttagtgc	ttttaattac	ggtttttgaca	atggatgtat	2460
atagatttct	ctgttcgtaa	tgaccaatcc	tctcgattcg	atccaataat	agaagcgcgt	2520
ggttctattc	tgtcgggtgga	atgtttgaat	atataataaa	ttcattcaag	aaagtaattg	2580
gctcagtgat	cttcgacgaa	aatgagttat	ggtacaacgg	gtaactcgga	gattggtaat	2640
tacaacacca	agcactcgtt	actgtgaaca	attatactga	agatgctggg	taccggaa	2698

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 943 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

aattggagaa	tagtgctgca	gcagcagtg	agcctttacg	gacagatcca	tggaagggca	60
gattcaatta	caaaagacca	agcgcgaatt	caaaggaccc	tgactttggt	ggttttccct	120
tttgtcaaga	agtctcgaaa	aagtcccaag	cgactgccac	ggaaatagga	gaatggttgc	180
ttgcaaacga	gtcggcgat	ctgccatcga	agtggtaaag	ggctttctca	atctgaccat	240
tgctcgaggg	tatggttgga	gctgctgaac	gagatccgag	cgatatcaa	cttcgacata	300
aggtecgctac	agaggatagc	ccgctggtaa	tggtggagta	ttctctccga	ataccaataa	360
gccgtttacac	cttggaacacg	tacgtaacaa	ccattgggtt	atagtctttc	cgagatcatg	420
aaagccaatg	gctatcgtgt	gtgaagacta	atatcgtaaa	tgaccgaggc	attcatatct	480
gtaagtccat	ctcgcttggc	aaaagtgggg	agatgggtgtg	acgccggaga	aggccggtag	540
aaaggcgatc	atctgatcgg	agactttctat	gtccttttctg	ataagcacac	aaagccgaac	600
tcaattccct	tatggctgaa	ggtaagagca	aagaagagcc	gaagccgcaa	gcaccctcat	660
ggctgaagct	cgtgagatgc	tacgatgtgg	gaggcaggag	acgaaaaggt	cgtcgatctc	720
tggcgtacta	tgaatagtgg	gtatacgacg	gattcgatgc	cacatacaag	atgatgggtg	780
tagattcgac	aagatatact	atgaatccga	gacctatctc	gtcggcaagg	aagagtgtctg	840
aggggtttgg	aggaaggctt	tgtttgtaaa	gcattccgat	ggttctgtat	gggcggatct	900
tgacaaagga	tggttggat	gaaaaatgct	ttgcgtgccg	atg		943

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2483 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

tgagttgagc	ggagagaatc	acccgatcaa	actccgnacg	tgtctggtat	tatacccgat	60
cttccattcc	gtggatgccc	gtagccgccc	gcgcgtttgt	cagaaatgaa	tggaagagg	120
agacgaggga	aacggagcga	gctttccccc	catattccat	gaagctgtgc	gaacccttgc	180
gaatggcttc	gtaagccctt	tgagtttgat	attgaacatc	tccgccccac	gaaacaaatt	240
gcgatggtga	aaccgagaga	caaagccgcc	ccgaagtctc	cagcgggaatt	ggtgcgagga	300
cttcggcttc	gaacgatttg	ctcttgcccg	gaacggtaag	aattagcagt	ccacaaggcg	360
agagctatcc	gccagagcaa	tctcatcctt	acattgtgct	ccacaaatcg	gatattcacg	420
ttccgaacga	tagggagcgc	atcagcttga	tataagagcg	ttccacatca	tcctcgaga	480
aaaaagctcc	ggtgtaacgg	acaccgaccg	cgtgagagcc	gatgcccgga	tataacgtcc	540
ctactcccat	agtaaacagt	gtaatcgcca	cgcgaaatcg	aatcgatagt	ggcagctcct	600
gaactctgaa	gtccgattcg	agaggatcat	aatcgggatg	aaagaatacc	ctgccgatcc	660
gatattggata	acgcccgatg	ccattgccac	taatttcaga	tccggcagatt	tcgtaccgga	720
tcctcctgaa	acggtgtatc	tgcttcataa	taaacatcct	cggcggagaa	cttcagaag	780
ccgtgttgcg	catatgacga	gctatcgctt	ttctctcttc	atcgagtacg	atggcgacaa	840
gggagaaccc	tcgctgatcc	cgaccttgta	tgccgaagga	aggaattgcc	aagcgcaacg	900
ggaggaagga	gtggattctt	cacatccaaa	gcataattgcg	tatataataa	cggcttccgg	960
gctgaatcag	ataagtaatg	gagctttctt	gtacaagccg	gtgtctacca	cggcacgagc	1020
agtagcatca	gaaagccatc	gccggccatc	gcctttgcca	gacgggttggc	agtacggtgg	1080
tgaggacaga	atcgatgagg	acaggcggtt	cgccccatctt	ccggagcaac	ggttccacca	1140
gctgttgctg	ttcggattcg	agctgctata	gacgcgagta	gccagcgagt	catcccgaac	1200

agtcctgtaat	tgggttgctg	gagggatagt	cccgaaatc	ttccggcaga	gcgatactgc	1260
ccgttttcgct	tgcgtcggtta	ccctgtctaa	tagtctgcta	ccgtccggca	cataacgggt	1320
gacgagcagg	aggaagcaag	catgaggagc	aagcagccgg	caatgccgat	taataccgaa	1380
cggaatgcga	ggacatagga	aaacggatat	acggggagag	aactatcggt	cgttccagat	1440
acgccaaactg	cacaacgcct	gtatgagcag	atctccaatc	cgttctgcac	agaagcacc	1500
tgtgcttgag	cgcgatgcag	aagatcggtt	cctgcggatt	atagatcaga	tcataacaga	1560
gatgctctca	cctataccct	cgaacggaat	agacggacat	tggctctatat	gtggataata	1620
cccaccggag	tggcattgac	gatcagcttg	tgcggttcga	taatctcggc	gtcagatccg	1680
aatatgcata	cacaccggga	gccgaaggcg	tgcgatgacc	tgcgatgta	ctattcccat	1740
cttcttcaga	gcgcgcatca	cagcagagct	gccccaccg	atcccaagac	gagagcttgc	1800
gtatgccacg	gcttcggatc	agctccaggc	tatcggcaaa	gcctttcaca	tcggtattat	1860
aacgacgaga	tggggacgac	gaaagcgcg	acgttctacc	cgaatcgat	tacggctccg	1920
gtcaattccg	cttcctcgtc	tatccgatcc	agatagcgca	cacctccact	ttgtacggcg	1980
atgtcacgtt	gaacccctga	agagagggag	gagcgaaagc	agactcttca	gttgggagag	2040
cgactccaga	gggaaaagtc	gtagacggca	ttgattccct	ccgtcttgaa	tttggcggtg	2100
agaattggc	agacagcgaa	tgagccagtg	gatagccgat	cagaccgtac	tttttctttc	2160
agtccecatat	aaacggttgc	cacctccaac	gaaaggctac	gataaacgct	tcccgaatc	2220
cgacagagag	catcaggtcc	gccagttcct	cccgtagggc	atggctgcta	tcgattcggg	2280
aagataggta	taggcttccg	catctgtgac	agaaaacgac	cgacaaccgg	tatcacatgc	2340
gaagcataga	agtgtagccc	tgcttccagg	ggaaactcac	cggacgggaa	agctccagta	2400
tatcagagga	gcaccctcat	tgagcacacg	atacatttcc	tccagaccga	cttgatatcc	2460
tgaaagtgtg	gcaagccgaa	agc				2483

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 187 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...187

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

ggcgatgatt	tgtgccggac	cggctttgaa	aatcttttagc	actctgtcca	ctcatccggt	60
gtcgggtgtga	gttcgcttgc	accgatgggtg	cgggcatctt	gacttcgtcg	atcatgaaat	120
tcagcaactt	ggcttgctga	aatcgctgat	tctacttgt	tcgatcatgt	aagttttgac	180
ctataga						187

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2775 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...2775

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

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ggtcatactc cagtttcgac cgctgcggaa accatataag gttttgaagt caggttggtc      60
cagtaaaagc agaattagag gcaatgcccc atacctcagt agaataccat tgctgaagcc      120
ggctcccaca ctggtcagta cgacgagatg aagatacccc aaaatacacc gaaggctgtg      180
gccagactgc gtctgcattg ctgtagatcg tatgccagat ctctatccaa cgatctctat      240
cgaaaatctc atagtctcct ttctcctcct tcgttttagtt tctcatcgcc tccacgcggg      300
gattcgtacg gctttgcggg cgggttggtg tcttgctatg gcacgcttac taccatgact      360
atcagagcta atagggcagt gctcaggtcg atctcggatc gcggaagagt gtcagcggtg      420
ttccttctac ctgtctgctc cgacaccggt ggtctgtacc caatgcgata cgaactccat      480
cagaccaacg cggccaccaaa gcctatcagt ccggaaaaca gtgtgaccac taccgcctcg      540
tcagaatcat gttgatgata gctcttggtc tggtctcccag tgctttgcaa tgctattttc      600
gcgctgtctt tccattgacg tcacttgcat gatattgcca ctccgataat tccgatgaca      660
aggggtgctca acccgataat ccaaagaaaa catccatgcc attgaatata ttgtccatca      720
tttttatgtc cgtcacggtg catcgacata gggcacttcc atatcggtag gatcatagcc      780
cttggaagg ccagttggcg attgagtagt acttttagtc tctccacggt ctctcagttc      840
gcacagacgg gcagttcatg aacagtgtgc agtccagact gaccctttgg cgaaaatacc      900
tgaatagggtg gcgaaaggaa tatagttggg gtgaattgcc cctgttcgcc tttgcaaacg      960
cctacgacga ggaacgggat tggacagat ttacgtatct ccctatgggc gaaatgcttt      1020
ccccgaatag acatcagccg tctgctcaca taggactatt acttttctct tcatggcacg      1080
tctgatgtgg agaggaaacg tccttcgata agatgcgtct tgaccatttg ccgtattctc      1140
cggatacggc tttcgtagga gtcgagtggt tccgatttct tactgtacgt cgtagctcca      1200
ctgggttggtg tagtatgccg caccttgatc agatcgggat tgagcttgac cagatagtcg      1260
cagtcagcag gtgtagctct atgtatctgt ccttgggata gcctccgtac tccttgctgg      1320
taccatgtgt gagaagctga tcgcactcgt acccataccg aactgctcca catgtgccgg      1380
atgccatgct ggaatccgcg gccggcactc agcagcagta tagcagcagt acaccccagg      1440
ctacggcaaa gccggtgaga gccgtacgca cataattcttg cgcagggtgg ctccctaattc      1500
gtgcaaattg tctaagtcga cataccgtct atcgtctctt tcaggtctta ggccccgatg      1560
atgccgtctt gatatggata atccgatccg tactgtcggc taccgactgt tcgtgcggac      1620
gatcaccata gtgatcccat cgcgattgac actgcgcagc agctcctcac ctctactgtc      1680
gtaacgctgt cgagtgtctc cgtaggttcg tccgcagaat gacctgtggc ttggcagcca      1740
aagcgcgagc tatggcaacg cgcttttctg tccacccgaa agttcgttgg gtaggtgatc      1800
agcccaatct tccgccccac ccgtcgaaag tattccatgg ccatctcatt gcgtttgcgg      1860
cgctcatgcc ctgatagtaa aggggtaggg caacgttctc cactgcattt tgaatgagat      1920
cagattgaag ctttggaaca cgaatccgat cagtctgcct gtatctccgc cgctcggttc      1980
tcggagagat tgcggatgag ttccgctgta ggcgatactc gccctcgtcg taggtgtcga      2040
gtacaccgag gatgttcaca gcgtactctt gcccgatcca gatgctccca tgatagagac      2100
catctccctt tggcgatgtg cagatctata cccttgagca cgtgtagagg ttgtgccccg      2160
gataagtttt gtggatgctt ttgatgtcga tcattttatt gcgatgttct tttattgttt      2220
gtctctcttc tccttgcgca tgatgatgga aggatcagaa gtccgagacc gccaaaaaatc      2280
agcagacaga ttcccgaag ggttcgaatg tgtggccgaa gctccagccg tcaagatttt      2340
ctattacacg ttgaaaacaa atgtcagaaa gaaagccagc nancagtcg atgccatgc      2400
caccatcatg aaacctactt tgatgccgag cccttgattg ggagaaggca ggagtcgagc ttctcgatca      2460
gttaactgtg ttaagtctgc atttctttcg ggagaaagca tttaaagatg aagtagaaca      2520
ggcgaagtcg ttgcgctcgg cgtacgtaag ttcgaaaatc tttaaagatg aagtagaaca      2580
ctaccgcagg taccaaacag attctaagtt cataatcggt tctttttagt ttgagggtta      2640
ttacttggtt tgtttgcttc tttgacggat agtgctcgaa aaggttacac ctctgatcgt      2700
tggttacccct cttcaagaga ggtcggctac cgtcgatcct gcttggtgtc ttttctggtt      2760
ctcttgcttt ctttc

```

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2101 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

```

aggaaataga agttcccttc atagcagaga gcccttattc gttaatgact cacaattgga      60
gggtaaagaa acctattttg gctcttctga tggttctaaa gattgcatta tacattgtgc      120
ggtttttctg atttttaatag atatgtctcg ggtctaattc ttctagtctg agtcgtgtat      180
tcttcgagat taaagggggg aatatcaacc cgttcaattg cagcatatta gaggtgtaat      240
agcagcatta tattgaatga atatggctgg gatgatgaac ttggaaaatt ggacaagggg      300
tatacagtac atcaagacat gataacaaaa cggagcgttt tggaaaaaat atctttggat      360
ggccttgtat aaaacagatg caatactttc tgttattgtt cgattttgaa aggtagatat      420
tatggttatg ctatacccaa aaagaggata tggcatcgaa cccttatcca tggttgacag      480
acgaatattc acaatagatc catcactatt gggtagacaa ggaaaagatt ttatttcttt      540
gaaatcaatc tattagagga agttaataat gttgataatg agcaatgggt gatagaggg      600
atcaattacc agctccgcgg ttgctcttga aagacaagat aatgcagact ggggtgctgt      660
aacgagctat gatgggcata aaacagagca gcagatggta ccacaaaga tctcttcttg      720
tataccaatg gtgcttcatt aagaaagaag agttgagtg cttacaagaa tgggctaaag      780
aacaaacttc tatgggcgat ggatgcctga atgcctaaat ggaagcacgg atttttgtgg      840
aatgaatacc cttgggcaga gacctacatt cgacaacgag ataatgggaa aagaatcata      900
gctacgaagg tgtaggtttt aaattgcagt ttcatatgag tctcaattgc aggaaaatag      960
cttggttttg atgattctaa gaatggttgc ccgaagtatg catgcccac catcacatta     1020
tggaagacta aagttataca cagccgaaag aggtgtagta agagatatat ccaccaataa     1080
atcgtttcgg taaatattcg ggttgaagct taaaggggtt agctatggaa aagactattt     1140
gtcagaatat ctttcacatt ctagatgtgt tcttggtatt attcttttag agaaaaatta     1200
atgagagcaa aaaatcatca aggttaggaa agattttatga cttatcaggt tcatatgcatt     1260
atgaagatag atctttcttg caatagagcc tatgcacatc tccaacgtct cgtgagattt     1320
cttttgagag gtcaggaatt gcttactgag aagctctttg gtgcataatc atttttttgt     1380
ccatcgctca ttcacgactt cggagtgtat gatccccctt tggggcaagg gtctttgtgg     1440
tacaaatggc aattttgtgt acaaagacac ccttgccagt gtcaagaagg gatgcttcat     1500
tgccctctac gatcactctt ttcttttagcg ctgagcaaaa cttaagctcg agacctcgat     1560
taattaattc tcgagatctc gaggtctcga ggtctcgaca ttggcctctt ctaattggga     1620
gctgagagtg ttgatttata gacgcagtc cgccttggtc ggagtgggat cttcttctt     1680
tgctccgcta gagttagata ctggttgatg tcttttaggg agcgtagcac gctcgcatat     1740
ccttgacggg tagcccagcg tcgagagttg ttctgttgct cgatcccccg cttcatcatt     1800
atcaagaagg ctccaatcat agggtaggga tgaagtgtgg gcatgagttt cggaagtagg     1860
gtagcgaatt aagtatgatg ctttcagctt gccctcggg gtgaagtttc cccaagagag     1920
aaagtccatg aagccctcga agagcaggag cttgtgacta cagtcctttt gattgtcggt     1980
atggccttgg atgcaaaaca gcccttaaat agggattgcg tagctcccat ccttcagcat     2040
cattggggaa gccagggaa agaaacactt cctagagact ttgtaataga cttccgataa     2100
g                                                                                   2101

```

(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 793 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...793

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

cgacaaagaa	ttaagaaggc	gattgactac	aaagttgatt	gccttttttt	tgatgactgg	60
ctcaggcgtc	aaatcacgaa	agcaaaagag	gctgtcccat	agagtcaggg	ggcagcctct	120
tcaggatcag	tatatattgt	gtctctgtta	ttcgggacga	gagcaacggc	tatagaatgt	180
gagttcttcc	ggacggaagc	gcgcacgtag	ctgtcgatct	tctcctgctc	agcctgaccg	240
taacgagata	tacctctgcc	gactgacgga	atgaatcgtc	gtcattggca	gccacatcag	300
cagatggccg	aagactgcat	gagcaytcat	ctctacaagc	cgagtgcctg	gaaatcgagc	360
agctcctggt	ctttctgttc	tgttacgaat	gcatacgtgc	ttcggcacgg	tcggtcatac	420
gagccagagc	ctctttcatc	gttgcaactc	tggcttaact	tctgtctgct	ggtactcttc	480
acggatacga	cgatataagt	gcctgtcggtg	atatggcgaa	tggctgctac	gacctgcaat	540
gtgtggtacc	ttcgtagatg	tttgtgatac	gtacatcgcg	gtagagactt	cgcaggtgta	600
gtccttcatg	aagccgctac	caccgtggat	ctgaacaagt	catagacatt	ctgattggca	660
aactcggagg	tcatttcttt	gccccatggg	tataggcatc	tgccagacgg	ctgaaatgct	720
tcattttccg	cacgtcttcg	gaagtcaatt	tgcgctcggtg	gctgatatcc	tccagcactt	780
tgtaatatcg	aca					793

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1150 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1150

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

agatgcagcg	gtttttttaag	actgctccgg	gcgaatatgc	tgagggagac	ttttcctcgg	60
aatatccggt	cccagacattc	gcgcttatga	gaagacacta	ggccttgagg	ggtggaaatc	120
ctcgctcttt	tgctgcaaca	gccttatacg	agggtcgggca	tctcgcactt	atcggcattga	180
ccgaactata	cagacggctc	ggtcggaagc	agtacgggag	gggctattag	cctcctatct	240
gagcctacga	ctatgatcaa	taactgggat	ttggttgatg	tatccgcacc	cggatagtag	300
gcgaatatgt	ccatgctcat	cccatcgagg	gcaatgcctt	gctgatagat	tggccgattc	360
atgcttggtg	tgggaacaac	gaatagcgat	ggagccaatt	ggcgactgat	ccgatacggga	420
gagtacgaag	ctaccattcg	cttgccgagc	gattgctcca	ccacccacac	gatctcattc	480
ataaagcagt	ggctggatgc	tgcgtgagat	gggtaaaaag	caagaacggc	tcctgcttgt	540
ttccttgaca	aacatgccgc	cactatgcca	cggacagctc	tccgctatcc	atggaaaagc	600
tcccgtccga	tctgcgctct	tactacctga	ccaaaggaaa	taatctacct	ataattttta	660
tatatcattt	ataggcggag	ctgcgaaaaa	gaataagccg	agcaaaaataa	cagacggaat	720
aaatcaaaaa	taaaagcaaa	tattgagtca	atatctgcct	ttttctcttt	ttccagtcgg	780
ggtgctggat	tcgaaccagc	gaccacacgc	ccccagacg	cgtactctaa	ccggctgagc	840
tacacccgcg	ttgcttattg	cggttgcaaa	gtagtttttt	tttttaccct	ccaagagttt	900
cgcgataaaa	atcgaaacat	tgcgtgcaaca	tttctccggt	atctcacatg	gttctgccgg	960
taagcctatc	cctttaagtg	aataagcctg	atthttgctcc	ccagattctt	cttgtctttc	1020
atgcaaaaaac	cgtcagagac	ggatattgct	tgcaggtgaa	aaagaagggt	gagtagtatc	1080
tttgaccatt	gcgaccagcg	agtagaygat	ctctcgaggg	aaaccattgc	caccaccgaa	1140
taatagagtt						1150

(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

```

ggcgaaatag atcgaggagct tatcgccgat cttgagatga agtttgtcgc agtaacttgt      60
ggcagaagaa taggattggg taccgtatcg gcagaactaa gtcggataa tttcccgaaa      120
cggtttgacc gaagagcgga ttgcgagtcg gagtgaattg tcccccatca gtagaatacc      180
ggcaaaagca ctgtcttctt ggcaacacct gtcatttcga tcgtgggcac tacccggtcc      240
acacctcgac agagggtata gcttcaagca tcccgaccgg agcattgaaa tgattgaagt      300
tccggccacg ggggcaatgc atagatgtcc cgtatagccg tatccagact gcggatattt      360
tgtttgaagc caccagctat cgacacggta atagcatgac catcaagctg agcatgatac      420
cgatcacaga gagacgaaca aaggggctat tcccttccctc tctttccctc cgcccctaaa      480
gagccgtccg ccaaaaagaa atcgatcttc atcggccctc taccctattc ttctatcagc      540
ggagaaaaa

```

(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

```

cataagagca aaaacgattc gtcaattttc ctcaacccaa acatctcacc ggggaacgga      60
ttcggggatc aaaaaaagaa aaccatggca tctcgactac ttctgcccac aagagaaaaa      120
tcaaggggga gccgcaaatt aaatactgcg actccccctt acttggtttg agagaaatat      180
cagatactga aagctatgta tggaagaaca acagtcctat agtcgcaata gcatcatctt      240
cttcaattat tagttgacta caactttcct tacattgcta ctctggttcag gacttgcaga      300
ctgacaacgt agactccatc gaccaatggt tccgtcatag actacttccg ggttttacgt      360
ccaatcgaat cagaagtttt ccgtcagttg gaaaaca

```

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1121 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

```

gtatccaata cgctcatttc catgattgta atcttcctgc tactcaaaac gccggtatga      60
aagacgggtc ggccaatctg atcgggttata tagcagggat atcaacagct tcatttgga      120
tcgtaaatgg acattccgga gccggactct tggaggcaaa cattcgtacc attcatcctg      180
atgttcgtaa tatgcttgca ctccaatacg gacttttgat gtgggtcaac gaatactcca      240
cctccacgac aagtattaca accacctgat aggaatggcc tttttcacca ttataatttc      300
cttgccaata agttcattac attcggcaaa gaacggtagt gcgtatttg acaatagaga      360
aaactcttta tctttgcagc gcaataaacc aagggttatt agctcatctg gctagagcgc      420
gacactggca gtgtcgaggt gccggttcga gtccgctata ctccacccaa aaagaagggtg      480
caaacgggca tcgatgcagt ttgcaccttt ttcttttgtc cccatcggat gcttttcctc      540
cgtccctatc tcgacaatct tccaaaagaa aagccgaaag accaataacc ctatcagcat      600
aattacgaaa gacagaagtg attgttttag aggcactaga aggaaattgt atcgtttccc      660
caactccctt ttggacattg acacagggct gaaaaccatg gccaaaccaa agtatatagt      720
ttggctttat caaagatata gtttggttcg accaaagtat atagttagt tcaaccaaac      780
tataagttta gtttcaccaa agtatatagt ttggtttgac cgaactatat agttgtttca      840
ggagcatttt gagctttctt tctcaagat ataatgcact ataatcaacc tcttatttct      900
tctttcctgt aggatgtcat ttttgactgc gcatacactt ttgccttccg ccatcttccc      960
gcaaagggaa tcgtaccgga agcaatttta cccggaaact ctataaactc acaatgtgta      1020
ctataatctg ggtagatttc ccgataggca tgatccaata gaatgggtaa acattccctt      1080
tcgttggggg tttcttctcc ccaaatacct gtcaaaaacg a              1121

```

(2) INFORMATION FOR SEQ ID NO:992

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

```

gaatttgtgg gcctaagaac cgcaatcatt ttcataagaa atacctccgc ctttattaga      60
ccaggaaaag atcgaaatga ccattcctga aaagccccaa gtaagaacca gaagtatcga      120
acgaaggaaa caatcaaatg atatcattcc caaaagggtt ttcaaaccct cgaaagagga      180
aataatataa tcggtgaggg gttggaaagg tattcctttc tgaccatcag gacggttgta      240

```

aatccagttc	ccgtcctgct	tttattttcg	aagcgggatc	atcgccctgcc	acatggcttt	300
tcgggtctatt	aagttcgggt	ctctatgctg	actgtgataa	agatatccgg	acaaaataga	360
gttctatcct	cctgtagaat	gtataaagga	ttggagaacg	actaggctgc	tttgaggaa	420
tcttttattt	acggaaacaa	atttctttcg	gacaactttt	gcttcgcatt	aaagaattac	480
agcagcgatt	cgaagtatcg	gcacaaagg	caagtagaaa	gtttttgcaa	aataattctat	540
tcctaagggc	gtaatcgttt	tccatattat	ctctcaaaag	gtctctcagc	cctcgaaaga	600
ggaaataata	taatcgggtg	aggagttgga	aaggtatcct	ttctgaccat	caggacngtt	660
gtaaatccca	attcccggtc	tgctttattt	cggaagccgg	gatcatcgcc	taccacatac	720
gtctttcggt	cttttggtcc	aattccctgc	ttaattcacg	gaagatatcc	ag	772

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

ttttaatcat	gaaatctgca	agtttcttgc	cataaagata	agaaaacttc	agattcatca	60
taggttttcg	caaactaatt	tgctcaatat	cagagagtaa	aggattctta	agggacgact	120
acatagtctt	acacagctat	ttctcgaatt	gggaagttcg	agtccgtagc	ctttcttcac	180
atcggcacct	ttcagggaat	accgaggata	aaggcgagga	taccgaacga	agcaaaaacc	240
agcatgccaa	agtatagttc	ttcggttcgc	cggctgcaac	acccttattc	gtgggtcgag	300
gatggctccg	atcacgatgg	gaacaacccat	caagccgata	ttcgaataaa	gaaaatggcc	360
gaataagccg	agccaagtac	tttggggctcg	atatcttggg	taccgacggc	cagagagcag	420
caggtacca	agagaaaagaa	aaccaggtac	gacgatggct	gcaatggcta	tggcaagaga	480
agaagtgggtg	cgctctcaaa	gggaaaaatg	gcgaatgtca	ggtggcagat	aaacatcaga	540
ctgctccgac	aataagcatg	gtggctcctt	tcccgaacttt	atccaagatg	cgccgaggaa	600
aggcgtcagc	accatggctc	ccaaggggaa	catactgaga	tacgggcagc	tccttcggcc	660
gtcagaccga	tatttggact	gaagcacttc	ggtggcaaaa	cttcttgaaa	ggggaaaatg	720
gcttgaatag	taaagacgca	caggagggca	acattccaga	catgctattg	ccgaaccctg	780
t						781

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2249 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

cctctgcttc	ccgtacagcc	gtatgtgcc	aaagcgagaa	gcctgtaatt	cacctgcagc	60
atagacattg	ggcagggaag	tttgcatcct	ctcattagct	ttacaccttt	gccggcaagc	120
accaatccga	gcgactcgaa	tccttgcgca	cggggcgacg	tcccacactc	atcaggatac	180
gttctccttc	gatctcttgc	tttctccttc	gtattctacc	gtaacagctc	cgttgcgaac	240
cgatgtactt	tgtgcccgag	gtagaatttg	attccttctt	tttcatagtg	agcggtagca	300
tagctgcatg	ttcgggatcg	ataccgttga	gtatttcggg	cagatctcca	ccacgtgcac	360
ttgcgtaccg	ataccgttga	agaaagaagc	gactccattc	cgatcactcc	accaccgatg	420
atgacgagag	aggtcggaat	cctttgttct	gtagagcttc	acggtttgtc	caatactctg	480
tctgtccac	ccgggggatgg	gtggaataaa	cgtctccgaa	ccggtacata	gtagcaggtg	540
gcagctttgt	actgtgcttc	gcccgagta	atgccgatga	tgccgtctca	tgcaccccg	600
ttacggtagc	ttctgccgtc	accatctcta	ctccggctct	gtcaggcggtg	aacggatgcc	660
tgcagtcagc	ttgcgaatga	ttttactttt	ctggcaatca	ccttgccgag	gtcaagtcca	720
tcggccgttc	cacttctgca	tatttagatg	ccgtagcaat	ttgatgtagc	actttggccg	780
agtaagtagc	gtcttggtcg	gtatacatcc	ttcgttgagg	catacaccac	cgaagcattc	840
ttctcaatta	ggagggtttt	caggccacct	ttggcagcac	gtcggcagcc	gtataaccgg	900
ccggccctcc	accgatgata	gctaagtcgt	acgcatagtt	ttatagattg	ttgcgttcga	960
tatccttaaa	gtagttgtac	tgcccacttt	cagctccaca	caggcagctt	cgtcacagac	1020
aatgatactt	gacgatggag	ctgcaaggct	gtgatcgctc	acatttggtc	gactgcactt	1080
ccacagcttc	acgaagagca	cgggctttag	tatgtccggt	cacgaggtca	ttacttcccg	1140
tgcattccata	attgttccta	ctctacgggt	gagagccggt	tcggaaacctg	attcgtatcg	1200
ttgtcgaaaa	agcgactggt	agccatacgg	tatctgtagt	tagcgtcttg	atacgggtgc	1260
gagaggtaag	agaaaccccg	gctcattgaa	tgcgatatgt	ccgtcaggtc	ctatcccggc	1320
gataaaagggt	ctatgcctcc	ggcagcttca	atagctctct	cgtatgcac	gcctcgcccg	1380
tcaggtcagg	agcattgcca	ttgagaatgt	ggatgttctg	agcaggatgt	cgatatggtc	1440
gaacaaatgc	cgatgcatga	atgaatgata	ctctccggat	gctctatagc	aaggccctacg	1500
tattcatcca	tgttgaagggt	attacgtggc	ggaaagatat	gcacccctct	ttgcatgctt	1560
tcactaacct	ctgtacattc	ctatcggcga	agaacctgtc	ggtagaccga	gtacaaagggt	1620
ttttcggccg	taggagctgc	tttatggata	cgtcgcgatga	cgtagtggct	gccattttgg	1680
agagctttgtc	gtaatccggc	tctatgatta	atctcttgta	agattgggggt	tagtccagta	1740
gtggatatga	tatattactg	acgacggctt	tcagacgttc	ggctatttta	ttgccaaagct	1800
cccaaccctt	ctctacaggt	catccgtgggt	agacatcttt	tgttccaaag	gttcgcctac	1860
cattcccaac	ccatttcttc	tgcaaaagga	actatctttt	tcacagccctg	acggccccatg	1920
taaaggagcc	gaacacgctc	agatagcgat	cttttacctc	cgaagacgga	tcatttccat	1980
gatattcttg	atcgggtgaaa	agatctcatg	ctgtatgtgg	ggctaccgat	tatcactgcc	2040
ttgtacttaa	agatgtctcg	caggatgtta	gatgccggac	tgaatgctac	attgtggcat	2100
acaacgtgcg	gatgcctnct	gcagcaatgc	cctgtgcgat	cgtatctgcc	aataactnctg	2160
attgccgtac	atagtgcctg	agagaatcac	tgcaccttct	tcggctcgta	tcggctcatc	2220
cgatcgtaga	ggtcgaaggc	ttcagagaa				2249

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 714 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...714

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

acgttttttag	gagcatgaaa	caaaaaattt	cacgaacgta	aatgggacga	tcgaagtttt	60
acttcggtct	cgtttttcat	ctctattcgc	ctatgaaatc	ctaaggctct	cttttagaca	120
aaaaatcttt	ggccaaaatc	cttctatggg	agcatcgagg	aaatgaagtt	gcagtcctcg	180
gtcatatacc	taatgaatag	gggagtggat	cggatcgggt	tgctccctct	cgaagagagg	240
tttcttcccg	tttcgggtctg	ccttatgaga	attattcgaa	gcagtcggtg	gcggtttaag	300
gtgtttcata	tacctttgcg	ctgcaatgca	atcataaaga	ctgtttctcc	atgttgga	360
agctcattat	tctggatttc	ggttctcaaa	cccacagctc	atcgccagac	gaattcgcca	420
gctgaacacc	tactgagagg	ttatccctac	aacaaactgc	cggaagacct	ctaaggagtg	480
cgaggcatca	cctgtcgggg	agcccttatt	ccgtgtatga	cagcaaggct	ttcgtatcga	540
ctgagccgaa	ttacggggcca	agttgcctct	ctttgggtat	ctgttacgtg	cacagagcct	600
tgtccatcaa	gcccggtgca	aagtagaagc	cgtgcgaagt	cgcgaatacg	ggcgaacaca	660
tctgaccctc	ggcagcctga	tgatgcctgc	tgacaggcct	gcaatccggc	ctac	714

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

gccgaaggat	tcgacgggct	gatectccct	goggaaaatg	cacgtgaaga	gccgtcgtga	60
acaacctcaa	tgtctatggc	gtgaagcata	ttgcagaatg	atcagccatt	tcaatggggg	120
cgatcagcta	cagcccaacta	tagtcgaacg	cgcagggaat	ttttcgacca	tcagcagcag	180
gtgtctttcg	acttttggag	gtgaaggggc	aggagaaggt	caagcgcgcc	ctcgaagtgg	240
cggccccaggc	ggacacaatc	tgatcatggt	cgggagtcct	ggcagtggga	aatcatgatg	300
gctaagcgaa	tgccccgaat	tcttctctcg	tttacctta	gcgatcgctc	gaaacgacca	360
agatatatac	cgtggccggg	aagctgggag	tcattcgatg	ctcctgacct	aacgcccttt	420
ccgctcgccc	caccattcca	ttcttcgcgc	gcactcggtg	gtggcggcac	ttatccacag	480
cccggagaga	caagtctggc	gcacaatggc	gtgctctttt	tggacgagct	ggccgagtta	540
accgctccgt	tctcgaggtg	atgcggcagc	ctttggaaga	tcggcagaca	ccgttttcga	600
gagccagaat	gacggtggat	tatcctgccc	gattcatctc	gtggctgcca	ttgaattcct	660
gtccttgccg	ctactacaac	cattcccacg				690

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

```

ggactatgcg cacacgccgg atgcactgat caatgtattg gataccatag accactggca      60
aaatcgcaca aggtgatcac agtggttagga gcaggaggaa tcgggacaaa ggcaaacgtc      120
cgatcatggc aaaggaggca gcccgcaaa ggaacgtttg atcctgacat cggacaatcc      180
gcgtgatgaa gagcctaaga aataatccaa gaaatggcta tcggactttc gacagaagac      240
aggaaaaaac actgctcatt actgatcggg cggaagccat ccgcacggcc tgcagctggc      300
agagaaggga gactttgttt tgatagccgg caaaggtcac gaacttatca ggaaatcaga      360
ggtgtcaagc accattttga tgatcgcgaa gtgtctgcga tgccatgtcg aaagatcgta      420
tcgttcaata aactctatag acccatgttg tactatctgt ttgattatct cgaaaagcta      480
cagctccccg agcgcgactg gtccatacgt gtcatttcgg tcgg                          524

```

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: FORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

```

gcaccggcga cgatgacgcc cgagcaggct ccgatggatt ggatgatcaa ttctgcccga      60
gcataatttcg gcgtcccgaa atggtgccga tacctacgcc aggatggcaa tgggaatggc      120
ggcttcgaat acttgcccga cttcagccc agataagctg cggcagcaga gaaaataact      180
gtcatcacca aaccacagg acagaatagg aggtaatctc gcgcggcgta ctgccggcag      240
gcaccccggt tcgtactctt cgcccggcct cagctcccga tatgcatttt cgggagcttg      300
ctcgttgtct gttgttttc catataatat atgtgtttga ttgatcgttt tttgcaccgc      360
cctccgatcg caataagagg gcggagaatc gtctgaaaca aagcgctcaa atatatacaa      420
cttcgttgaa aaccggtcct tcgatcggac aggaagcccg atcattcccg gcagtatata      480
cgtgcgatgc cttcggagtc gatagactac agaccgcccgc tttcgccgcc gccttgctc      539

```

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

```

cagtgtttga attgactctg atatgccgaa aaatacgaaa aaagtcgaaa gaatcaatat    60
cctccgacaa tcaacgtgaa tacaacaatc aaaagtaaac agactcttct ttatctctaa    120
tccctgagat ccagaaagaa cgcttgatat gcaggtcttc tgacttattc aaggcttcgc    180
tgccttccca tacgatctgt atagtggcct tctcgtggca aaacccttac atctgaactt    240
acagcgaggg tacagtccca gaatttcact gggttccctt ttcattctac actcatgaac    300
cgggtgtagaa aaccattgac acggcaagaa tattcattat atcatactag tgcggaaaaat    360
tgaagaaaaa aatatggatt tgtttgagga tacttttcagt atacgtcatt aaggctaata    420
gggtgtgaaa tgccgctgat atttatgtgt tcgtgtgtaa ataaaaactg aggctgtctc    480
gtcatgagac gcctcagctt catttattgg taggaatatt tgggatattc cgctgcagta    540
ttactacaat ccgattccaa gcgttctctt catagatttg ctctgatggc ccttccttca    600
atggtatgcg atccgcagaa caccat                                     626

```

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

```

ggcttatgct catttatagt atagtgcag caactctctg aacaaaagga ttgaaatagg    60
aatcaggagt acttttgaca gataagccca agtatgcag ggatgatcaa gtctcgatca    120
acaataaatc agtgtaagca tgctgtcgga ttcagcaact cggccgcaat ctacaggagc    180
cgatcgaggg taatggatcg atacgatgga aaatatccga aaggggatcg tatttgccat    240
agagggcata ctcttgccca atgaaaggaa tgtggactcc ttattgtcag ccgaacgatg    300
agctgtcctt tgaactgtcg ctggcgagat tccagttcta tcgagaaaga ggggtgttca    360
tcaaatagcg caactctttt ctgacaagct cctggctgct tccgcataat ggggagcgca    420
gccgaggtag atattgaaga ccccgtagcg gaatagggcg tgtaattgct ctctacgtta    480
tagacatagc atgctcttca cgcagtgaga gattgagccg ggagttcata cccggccctc    540
gaggatatta ttaagcagac ttagcggaat gcgtctgtcg tcgtggagga atacgccgga    600
ccgcccatga ggatgtgatg ctggtaggta tcttggtccg tctgatggta cgcggcagaa    660
agccttctct gagggtagtg agaggatacc atcgggtatta cggatggaga ccttctcggc    720
cggattaagg ggccatcgga caggctctgct tctccggcca ggaagaagat catattgtcc    780
ggccgtagtg gcgacggagg aagttacgac ctatttgtec cgtgatgcgt gatcagaagc    840
ctctgtgccg agaattgtat gtccgagagg atgatgaccg gaaaggatat tctcgaattc    900
gtcgaatata agttccgagg gattggtctt cataagaaat cgattttctg cgaataacaa    960
cgggttt

```

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1192 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...1192
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

```

ccggacgctc cgaatagaga tacgtgcagg cggctgaaaag aaatcttgtc tgcaggaagc      60
tgtagcaatc ctggaagaat tccggtttct cacctctctt cctacaatga catctatccc      120
gatgaaggcg tggggcaatg ccctgcgata tgctccactc gctcccgaag gagagccgta      180
tcgtaccgac ggcgcagagc ttgagcacat cgtcggatcc gctctgaagc ggcatatgga      240
aatgtgagca atacggtgtg ccgaggcaca gaagtcaata agttcgtcgg agagagattt      300
ggttcgatag aaccgattcg gtatcgctcg ataccttcca cttgtccaga gcacgcaaga      360
gatcgaggaa tgtctccccc gtactgcgcc cgagtcacct atattgactc ccgtaagtac      420
gatctccttt cctccctctg cgctacggcc tcagcctgtc ggacgagaga ctctatcgac      480
ccgtttcggc gcgtccgcga gctttgggta tcgtgcagta agagcagtggt tagtcgcac      540
gtcctgcact ttgaggaaat ggcgtgtgctg gtcgtccgcc gaacagccgg ttgaaatttg      600
cgaatatcct ttgtgggggt cgtgagaata gtctgctggc aaagccctgt atcggctctt      660
ggctgagaat acttacgagg tcgagctctc atcggctccc agtacgatgt ctactccgtc      720
tattcgagct atttctccgg tttgagctgg gcatagcagc cggtgacgat catcaacgca      780
ccggatgctc tttatgtaac ttgcggatgg cattgcggca tttcttatcg gccgctccgt      840
tacggagcat gtattgatca cgcataatc ggctttttcg cctctcgac agggcgca      900
ccctgctcgg cgagagcttt tccgatggc gagtctctgc gaaattcagt ttgcagccaa      960
gagtcaggaa agccgctttt tgttttcaaa gatgaaagca tctgtcatac cgcgcaaatt      1020
tactgctttt gagactgtgg gacagatatt tcaggggcaac tcacagggca atcgattga      1080
actgtcaaca cacttataaa cctaactaac gattgctaca ctcggtttca aacaagtacg      1140
aattaatggg acctttgcac aacaagcagg cncctttggt tattcttctt at      1192

```

(2) INFORMATION FOR SEQ ID NO:1002

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3756 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...3756
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

```

ggcgccatt tagtcacgag cagtagacgc gaaaccaagt gatctaccct ggtcagggttg      60
aaggtttagt aacactaact ggaggaccga atcggtaacg ttgaaaagct ttcgaatgaa      120
ctgagggtag ggggtgaaag ctaatcaact tggagatagc tcgtactccc cgaaatgcat      180
ttaggtgcag cctgttgatg ttatcatgag gtagagcgac tgattggatg cgagggtttc      240
accgctatca agtccagata aactccgaat gcatgataat tgaccgatgg agtggggcat      300
gggtgctaag gtccatgtcc gagaggagaa gaatccggac cacggctaag gtcccgaat      360
aattgctaag ttgtaaaaac gaagtcaaga tgagagacag ctaggatgtt ggcttggaag      420

```

cagccattca	tttaaagagt	ggtaacagct	cactagtcga	ggattttggc	atggataata	480
cacgggcata	gcaatttacc	gaagccgtgg	gatataagtaa	tatatcggtg	ggggagcatc	540
cagcgacgta	gaagggaaaa	gggcgacttt	ttctggaggtt	tctggaaaagc	aaatgtaggt	600
ataagtaacg	ataaaagggg	cgagaacccc	cctcgccaaa	gaccaaggtt	tcctgatcaa	660
cgctaatacg	atcaggggtta	gtcgggccta	aggataagcc	gaatggcgat	tcctgatggaa	720
gaaccgggtta	atattcggta	ctgatacaga	gagcgatgtg	gtgacggaga	agtgacagtc	780
cggcgtctga	cggaataggc	ggttaaagg	tgtagatgtt	gatcggggta	ggcaatccgc	840
cctgagagtc	gaacctgaca	gtacccggag	tacaagtacg	aaggataagg	acgtaaaccg	900
gctcccaaga	aaaccgccta	agcataattc	ttgttaccgg	taccgtaaac	cgacacaggt	960
ggttgggttg	agtataactaa	gcgctcgaga	gattcgcgg	taaggaaacta	ggcaaaatgg	1020
tcctgttaact	cgggagaaaag	gacgcctgtc	tccggacagg	ccgcagaaac	caggcccagc	1080
gactgtttaa	caaaaacaca	aggctatgca	aaaaagcaat	ttgaggttat	agtctgacac	1140
ctgcccgggtg	ctggaagggtt	aagaggagga	gtcatctcaa	gagaagctct	gaattgaagc	1200
cccagtaaac	ggcggccgta	actatacgg	cctaaggtag	cgaaattcct	tgtcgggtaa	1260
gttccgacct	gcacaatggt	gtaacgatct	gggcactgtc	tcaaccgcga	tctcgggtgaa	1320
atttagtatc	ggtgaagatg	ccgattaccc	gcaacgggac	gaaaagaccc	cggaaccttt	1380
actatagctt	tacattgtat	ttgggcatca	gatgtgtagg	aaggccggag	gcagagaagc	1440
gggtacgcca	gtattcgtgg	agtcgatgtt	aaatacggcc	cttttgatgt	ttggatacta	1500
actcgcggcg	tgcgaggacg	tgtatgggtg	gtagtttgac	tggggtgggtc	gcctccaaaa	1560
gcgtaacgag	gcttctaaag	gtaccctcag	gcccattggg	aaccgggtcgc	agagtgtatg	1620
gcacaagggt	gcttgactgg	gagacaaaac	agtcgcacag	gtaggaacta	gagcatagtg	1680
atccggtgg	tcgcgatgga	agggccatcg	ctcaaggata	aaaggtaactc	cggggataac	1740
aggctgatca	ctcccaagag	ctcaatcgac	ggagtgggtt	ggcacctcga	tgtcgggtcg	1800
tcacatcctg	gggtggagaa	ggtcccaagg	gttgggctgt	tgcgccatta	aagtggcacg	1860
cggctgggtt	cagaacgtcg	tgagacagtt	cggctctctat	ctgttggtggg	ccaggaaatt	1920
tgcgaggggtc	tgacactagt	acgagaggac	cgtgttggtg	gacccctggg	ttaccgggtg	1980
taccgccagg	tgcaccgcgg	gtatccacgc	tggttaaggat	aagtgtctgaa	agcatctaa	2040
cacgaagccg	gcctcaagta	agatttccat	aaatagggtg	gttaaagact	atgacctga	2100
taggctgagg	tgtatgattg	gtaacaatta	agccgagcag	tactaatagc	ccgaaatttt	2160
gtgcatcccc	aaggatgcgg	tataggttgg	tttgttgccg	caaagttgag	gaattatattg	2220
ttggcctttc	gatatgtcga	ttgccttttc	gaagattcag	gtggttataa	cgttggggat	2280
ccacctcttc	ccattccgaa	caggaagtta	agcccaacgg	tgcgatgggt	actgcgtcac	2340
agtgggagag	tagacgccc	cgttttttta	gaagcgtgag	agagaggggg	ggataggatc	2400
tcacctctct	ccccggaaaa	aaagggtgaag	gagagagctc	cgaatccgag	ctctctctct	2460
ttttattttc	tctctctcca	aaaatcattt	tgtttttctt	ctattcctct	ttctctcttt	2520
ccttccttcc	tttctctccc	cttgctgccg	ttattcctct	aacagatcgt	acgccaacta	2580
tctcattggt	cggtaggacc	ataggtagcc	gcggacggat	ggatagccca	tgcgacgag	2640
cagccgatata	aattctccat	ctgtgcatga	tgaactttgc	gaactgctcc	gaattatagt	2700
ctacgatgtc	tgtgtgatcg	tcgtagagaa	tgatccgac	gggagacgct	gttccccttc	2760
cgggaggaga	atatcctggt	cattaagaa	tcgcccgtac	catcgaaaca	acgagacaat	2820
cgactgtccg	aagtgacaac	agtaggcgat	cgaccaattc	gategcctca	tctctcgtga	2880
cgattcctcc	cacacataac	gctcaagagc	aggctcgatg	tccttggcga	gaacgatgtc	2940
gcaaggattc	tgtgcattac	atgtccgtgg	taaagcgggt	tgtgcctgca	taaaattcac	3000
tgccttcagg	ccgatatgcc	aagcggtcgg	ctacggccag	agacttcctt	tgggcagggt	3060
aaaaggtaag	ccagaagagg	ggtgatcgtc	gtttttttgtc	tgcgggatata	gaccggactt	3120
ccccagcagt	acatatggac	tctgtcttat	tctcgtccaa	ggaagcaaga	gctaaatgta	3180
taagactccc	acggtagaga	gcgattcggg	cttttgggaa	ggatgtaacc	acagtgcac	3240
tcgtccttcg	ctcgtgtcgt	agccacataa	agaagattga	ggtgtcaagg	agaatatcgg	3300
ctctttctcg	gaaataatct	gtggcaaaaca	tttttgtgcc	atctccttct	tatatctgat	3360
cggcactacg	ggcaggatat	taaaggactg	cgggcaggat	cgatcttgca	ccagaggatg	3420
tgtcgatgtg	tgttcctcgt	tccagattcc	agtcgaagaa	aggaataaga	acaacgcgga	3480
gcctagacct	ttcgccttgt	gaatgggtcat	tagcgtgacg	gcctgacttt	gggagcggag	3540
gaaatacggc	ttttggcatg	ccccgtttcg	tcccaccttg	caggaaagag	tgcagatcgg	3600
cagatcgttc	gtgaccgaaa	tcattgttaa	atccagccaa	gcaattagat	agggcatctc	3660
tctttcaggt	aggtagaatg	gaaaaaagag	accaatcctt	ctgccaatcc	gtataaggag	3720
cgacacgaag	gttggcaaat	tctgcaagct	ctgcgg			3756

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

tcggcatttt	cggttcgaaa	atccaagttt	ccaaccaanc	cacagacttg	atcgctcccc	60
tttgcatagc	aaatctgtga	ctgccggttc	atccggaaca	ggaaactttt	ttcttggtat	120
cgttcaagaa	cgnaaagtct	gtgccgacga	ttggcacaag	tccttcccgg	cctgttagag	180
attgaggact	gtcagcaatc	ggactttcgc	atcggtcatt	atgacagacg	aggaagtatt	240
gaacaccgcc	aaacggtcac	tgttatgctt	aaagggataa	atccgaatcg	tgcgcacgat	300
aattgcaata	cgtagttaga	gatggcatac	gactttacac	aaaattccgc	aacagcctgg	360
agtacagcta	tcaggaagca	acccgtctcg	gctcgtagcc	gtgacgcaag	atatgctcgt	420
actcggatc	attcgcgacg	ggacaatggc	gcgatcgaca	tcattgcggca	ctatgggatc	480
aaattgtacg	actcaaacgg	ttgatcgagt	tggaagccat	cgccgagagt	ttgcctgctc	540
gcctgaggga	tcgcccattc	tcaccccttc	ggctcgggag	gctatcgaga	tgccacagac	600
atctgtgccc	acatggagga	cgaggccgtc	agcccggcca	tctgttgctg	agtatcctca	660
actcgacaca	ggagagctta	gtacaaagat	atttatgaaa	caaggtataa	aatacgacac	720
catcctgtcg	gattattcgg	acagcgcaac	ccctccgaag	ggaagtctcc	ctccgaaatg	780
gagacctcga	cgggtaccaa	gacaacgact	tcgacgacga	agaggacgaa	tccctccgcc	840
ttccgggaat	agcgggacag	gcgagggtc	cggcgacgcc	ccgaacagaa	taccggcgga	900
ggcgatacta	ccaccacgac	acggagtggg	gcgacacgcc	tgcactggac	accttcggca	960
ccgacatcac	tgccatggcg	cagcaggcaa	gctcgacccg	gtagtgggtc	gggagcagga	1020
gatcgaaaag	tgatacacat	actcagccgg	cgcaaaaaga	acaatccggt	gctcatcgcg	1080
aaaccgggtg	aggcaagagt	gccatcgtag	aaggactggc	cgaacgctcg	tgaacaggaa	1140
ggtgagccgt	attcttttcg	acaagcggat	catcagctcg	atttggtcca	gatggtagcc	1200
ggcaccaaat	atcgcggaca	gttcgagagc	ggttgaaagc	cgtgctcgat	gagctgaaga	1260
agaatccgca	gatctcctct	tcattcgacga	gatacatacc	atcgtgggag	caggctctgc	1320
agcggatcga	tggtacgggn	caatatgctc	aaaccgcgtc	ttgcccgtgg	acggtacagt	1380
gcattcgagc	cactacgctg	gatgagtatc	gtaagaacat	aaaaaggacg	gagcattcga	1440
acgccgcttc	cagaaggtgc	cgatagcccc	tcgactgcag	aagaaacgct	gacca	1495

(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 625 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

tcagctggca	gctcaccctt	ttcgtcttca	tctcctacc	gatagccggg	ggctgatggg	60
taaggtaggg	aaaactctca	agcgcaagag	tctggaaggc	agaatcagtg	gggaagcctg	120
atgagccaga	tagaagaaac	gcttgccgcc	tgcgtatcat	caaggcattc	aatgccgaga	180
aaaagatgca	ggatcgttcc	atcgtgccaa	cgagcagttt	ctccgtacga	cgatgaaggt	240
cttccccgcc	agcagttggc	acatccgatg	agcgaatttc	tcggcacagc	tacctagcca	300

tcgtactgtg	gtatgggggt	acccttatcc	tgaacaatac	gaggagatcg	atgcttccac	360
ctttatatat	tatctgggtga	tcttctacag	tcgatcaatc	cggtcaagga	gctgagcaag	420
gcatacctacg	ccattgaaaa	gggttggcct	ccatgtcgcg	cgtggacaag	atcctgatgg	480
ccgagaacga	atcaaagatc	ccgaacagcc	ccaccccggtg	gtgttcgaag	aggaggtcgt	540
tacgaccatg	tgtggttccg	ctacggcgaa	gactgggtgc	tgcgcgattc	tgtctgacaa	600
tcccgaaggc	aagacggtgg	cattg				625

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

tcatactcccg	aaggatagac	gtagctgac	atcacatgca	gcgatggcga	tctatgtctg	60
ccgcgagagg	gatgtagcgt	tcgagatagg	ccgaatcgaa	gagacagact	tcgattcggc	120
agctttgtta	ttgctacagc	ccaaagcgtg	atcaaagaca	atggaaagag	tagcaacagc	180
acgctgcgca	tggattcatc	atagtgaag	attgtaatcc	cgatagattc	atcttactgc	240
cacaattttac	gcaattcatt	cggataagcc	tttttttttac	gcgcgggtgc	acatctacga	300
gcctgttcga	agttattaga	gtatcgaaaa	ttgcttgcat	tttatttgaa	tctagtacgt	360
aaaaacaact	ctgctcagaa	tcttaacata	ttccatgcaa	aagagggcct	ctgtgaagaa	420
atgcttcttt	aaggctgttt	taatattgag	caccttaaga	tgttactcga	attctgatga	480
ggtggatctc	tcaaacgggtc	aaatctgttc	atgtggcgga	tgaactatta	tctttggcag	540
acggagccgg	tctttccatc	atcgaatgag	gtgagctcgg	catttccctt	gtggtaaagt	600
cttaatcaaa	gacttattgg	ggtcgaatag	cagagagaaa	agatagcctt	atcgt	655

(2) INFORMATION FOR SEQ ID NO:1006

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1064 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1064

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

tgtgtgccgc	atcggtatgc	cngtatttga	tagcacgctt	ataggaggag	ggaaaaaaag	60
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tgcaactaccc	tctcctccga	gttgctccaa	atcggagaga	gatagccggc	ttcttccata	120
tccgaagcaa	tgcaaaggac	agggcgacgg	attcgtgcag	cagtttcact	ataagagctg	180
ccgacgaccc	gcaaagccgt	cgagagctac	gcacttctct	cggtcgaggg	ctttcatcaa	240
agcctcacac	cattgtgccc	gcgaaagagg	gaaagaatat	cgattgggtg	gggaatttga	300
tcatgagaca	aaaataagcg	gtctgtacca	attattttag	cgaacgatat	tacgatccat	360
cctaaagttc	cggccaaatc	agattgcacg	ggtgggttat	gcgcaagatt	tttctctttt	420
gtccttcttg	aaaacgtgac	ggcaccgaaa	aagttgatgc	tcggaatcgg	tcaaagtgtt	480
cgacataatt	acatcagcac	gatatgccat	ttagagccgg	tgccatagag	tgagcagtt	540
ttgtagttaa	tacagtgtac	atttgtgtcg	ataaaaaggcg	aacaaccctt	tcgaccgcat	600
caacatgctg	ataatgaata	aaataaaaaa	gtgaaagaat	ataatgaaca	agcaaaaaaa	660
caatcgcgaa	cgaacgcctc	agcccgacag	gataccgaaa	gagacgaaca	actgacaaac	720
agtcacgaaa	atgattagat	agtgcctccg	cagccgaaga	gaacgacaag	gtggcagacc	780
cggtgagcag	ctcacggctc	agttggctgc	tcttaacgac	acccactgcg	tttatggcag	840
aatatgacaa	ctaccgcaag	cggacactca	aggaaaagag	cgacttatcc	gcaatggagg	900
agaaaagggtg	ctcgtgggat	ctgctgcccg	tatcgacgac	ttcgagcgcg	ccctcagcaa	960
tctgggcgac	atgcgagagc	tgctgccatc	aagaaggagt	ggaactgatc	tacngcaagt	1020
tcatggactt	ctgcagagca	tggtgtcaaa	aagatagaac	cgca		1064

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

gtaaaccaga	aaaagaaccc	cagtcctggc	ctacaaggaa	tctaaaactt	tcctcgaaga	60
gcctgaaaca	cattagaatc	gactaaaaac	agaaataagc	gaaagtttta	tcacttaaag	120
agcaaagaaa	ctatgatgac	tagcgaaagt	acgtagaaag	tcttcggaaa	cttaacttga	180
aggtttactt	catggggaaa	ggatcgaaaa	ccctgtagat	catcccatga	ttcgtccctc	240
aatgattcag	tagctatgac	ttataagctt	gcagagatgg	acgaatacaa	gcattaatga	300
cagcaacttc	aaacttgact	ggtaagcaag	tgaatcgttt	ctgcatctac	atcagagcac	360
agaggatctg	aaagacaaag	tgaagatgca	gctctcatgg	gacaaaaaac	agcttcatgc	420
ttccagcggt	gtgtgggaat	gatgcattca	atgccatcta	ttctactact	tacgaaatgg	480
atcaagctct	ggtaccactt	atcacaagcg	tttcatcgag	tacatgaaat	atgtacaagc	540
aacgacttgg	tcgtagatgg	agccatgaca	gaccccaaa	gggatcgcg	ttatctccct	600
cagaacaagc	cgatccggat	ctttatctgc	acattgtgaa	gttcgtgaag	atgggatcgt	660
cgtttccggt	gcaaaggcac	accaaaccgga	gcagtcaatt	cgcacgagca	tctgatcatg	720
cctacgatcg	ctatggcgaa	gctgatgctg	attatgccgt	ttcttttgct	gttcccagtg	780
atgcgaaggc	gttattatga	tctatggctg	ccagtcatgc	gacactcgca	aaaggaagaa	840
ggggcgagaca	ttgacctcgg	caactctgaa	ttcggcgga	ataagctctt	gttgatttcg	900
accgcgtatt	cgtgcccatt	gaacgcgtgt	tatgtgcaaa	gaataaccagt	ttgcagggtat	960
gatggtagaa	cgtttccgca	ataccaccgt	cagtccttatg	gaggatgtaa	agtaggtgtt	1020
ggtagtgtat	tatcggtgca	gctgctcttg	cagcagacta	caatggagtt	cctaaggctc	1080
tcacattaag	gataaaactca	ttgagatgat	ccacctgaat	gaaaccctta	tgcttgcggt	1140
attgcatgct	cttcagaggg	aactcagatg	aaagccgcaa	ctatatgatc	gatttggtgt	1200
tagctaattg	ttgtaagcaa	aataatcccg	ccttccttat	gaaatagctc	gtttggcaga	1260
agatatttga	ggagtttgat	ggtaaccatg	ccttctcaac	aagacttccg	ccatccggaa	1320
atagcccgat	cgtaaagaaa	tatcttgacg	gtgcaacagg	caaatcgaca	gaaaccgtat	1380
gcgtgttctg	cgtttgatag	agaatatcac	gctgggaaca	gtgccgtcgg	ttatcgaacc	1440
gagtcctatg	acggagccgg	atctcctcaa	ctcagagaat	catgatcgct	cgtcaggagg	1500
atcttgaggg	caagaaaaac	ttgcacgggc	gattgctcat	atcgacgaat	cactcgataa	1560

gtaatcggtc	tccttcactt	atctgtttga	tgtattttaga	agacggatta	taacgcaccg	1620
tgaaacccga	tacaatgaca	gaagaaatag	tcgaactcgt	actgcggagc	ggatcagtc	1680
gctactgcgc	agtcacgggg	gcgacttata	tttattcaaa	tcaaggataa	gaccgttttt	1740
gtgcggtttt	ccggagcatg	ccgatctgtc	cggcagcaca	tgagacagta	gaaaaaatcg	1800
ttcaagccat	gatcgcgaat	acttcaaaga	tgacaacatc	gatgtcattc	ttgaaaatag	1860
tgtagcgatg	atctgtttaga	acaagccaag	aattattttga	gaaaacccaa	aagctttttat	1920
gaaagacgta	ttagcgggaat	atgcctcccc	aattgttttcg	ccgaagaagc	cgtaaaacat	1980
atcaaaaatg	gagaacgggt	agctttgtcc	atgctgccgg	agttcctcag	agttgtgttg	2040
atgcactggt	acaacaggcg	acctttttcca	gaatgtcgaa	atztatcaca	tgctttgtct	2100
cggcgaagaa	aatatatggc	acctgaaatg	gccccctact	tccgacacat	aaccaatttg	2160
taggtggtaa	ttctcgtaaa	gcagttgagg	aaaatagagc	cgactcattc	cggtattctt	2220
ttatgaagtg	ccatcaatga	ttcgcaaaga	catcttcaca	tagatgtcgc	catcgttcag	2280
ctttcaatgc	ctgatgagaa	tggtactgta	gtttttggagt	atcttgcgat	tatagcaaac	2340
cggcagcaga	aacgctcatt	tagttatagg	ggaaatcaac	cgtcaaatgc	catatgtaca	2400
tgcgacaact	tgattcacat	atcgaagttg	gattacatcg	tgatggcaga	taccctatct	2460
attctcttgc	aaagcccaaa	atcggagaag	tagaagaagt	atcgggcgta	attgtgccga	2520
gcttattgaa	gatggtgcca	cactccaatc	ggtatcggcg	cgattcctga	tgcag	2575

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

agcttgccgac	tgatattgag	agccaagcgt	atcaagcagc	ttatttcagat	atccttttttg	60
attgcttttga	ccggatccgc	ttgaaatcga	agtacagaga	aagtaaggag	ccgttatggc	120
cacggctctc	ccgtctgtag	cgtatatttg	ccgcgaatag	gtgccagatc	caccggttcg	180
gggcgatgaa	gagttttccg	atggtacgcc	acttgctccc	ttcaacaaaa	attgtcttca	240
gaatctaccg	aataccacga	gcaagaatac	aatcatcaac	gtccccacga	tgcgtagcgg	300
cgtacggcct	tgatggtcac	cggattgttt	gtctcttcc	gttcatatcg	gtgttttatt	360
tcttgccggc	atcagtatcg	acaggacggg	aggaatgtat	ggcggagtct	gcgagagtgt	420
cagctcgagg	ttttgcgatt	gatggctttc	tctacattca	gtttctgact	catagcagta	480
acttcagaag	tttgaacagg	gcacgatagc	gataatcttt	cacttgttcc	tccagacggc	540
tatttcgcgc	acctgctcga	tggtttggtg	gccgtttcaa	atgttaatac	ggacatcacg	600
acgatgacca	gtcccaactt	ccagttgctg	gctatcctgg	gtgatcgagg	aaagatcctc	660
ccatcacggt	ccaaaaacta	ttcttttctt	tgaagccgcg	gagtaagagt	tgtgaaggaa	720
tgcttctctt	tctgtgaggt	ctccactca	ggagagctcc	cttctttctc	gcaaaggatg	780
tctctctctt	gctgatattg	tttttcgcag	tgtctgccat	tatatatttt	ctgtattcgt	840
agtttggcac	ttcttgaacc	gggtttgtcg	gcagactctt	tttcgaagct	gtcagcggct	900
tgcgagtgat	ctggtgccaa	ggactctgtg	ggctccgfac	agacgcaaag	aatcttcac	960
gggtgccttt	acagttccgt	gcgaaggacg	tttttgacca	tctgtcctc	aagcgaatgg	1020
tacgtcattc	cacaagtcgc	ccaccacttc	tcagacagcc	gagggctgct	tcgagcattg	1080
ctgcaaagct	cccaactcat	cgtttacctc	gatgcgcaag	gcttgagat	gcaggccaac	1140
tgtttctttt	cttctcgcgg	agagatgaga	ccgcgcggcg	ctcgagaagt	tgccccacag	1200
ttttgactcc	gccggaagga	gactcctgta	gtggacaatg	gatgcagcaa	aacgacgtgc	1260
ctgtttcagt	tcccatagtg	atagaagagg	gcgacagggg	acgaggcatc	gtattcgttc	1320
aagtggcagc	tgcatcgagg	ccggcacgag	cgttcattct	catgtccaaa	agggactttc	1380
cgaacggaaa	ctgaatccgc	gtcctctctc	gtcgaaatga	ttgacgatac	accaaggtct	1440
gccaatatgc	cgtcgactcc	atcctctccg	aataatccat	gaagttggcg	aggtagcgga	1500
agttggaagt	tacaaaggta	agcgctcctc	ttggagaatg	tttcgacaag	catcggcatc	1560

ttggtcgacc	cgtacagccg	tcctttggag	cttaattttt	ccacgatagc	ccgggaagtc	1620
cgccgcccgc	gaacgtgaca	tcgacatagc	acccgtcagg	atcaatcgca	atccttccaa	1680
acactcgccg	agcatcaccg	gtatgtgata	aacacctctt	tatcaggaca	atgcatgctg	1740
gttgggtctct	tctaaatctt	cactgtagta	attgtattat	accacgctcc	aaagttagcc	1800
aataacgcat	aaagagagaa	ataatcttgg	agatacgaac	aaaaacttat	caacaccgaa	1860
ggatatgtct	agattcattg	ctgtccgata	aacctcagag	tagggataaa	acgacaagta	1920
attccagtaa	ataggtcgct	ttagagcggt	tttcgcttta	taagcctcca	tccaaaaaga	1980
ttaggctccg	gcggggtttc	ttccccttga	aattgagttt	cccaatcacg	ttccggatga	2040
ttaaagtgcg	tgtaaaagcg	acatatcc				2069

(2) INFORMATION FOR SEQ ID NO:1009

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

cggtccacgg	ctacagtcgt	gtattgttgc	acgaatgtct	gtacgtttacg	gctattttctc	60
cggcaatgct	tctggcatat	tctaccttgg	agaaatcatt	ccgactttac	ttttttgcat	120
acttatgata	tgtattcttg	ctttatgtat	ttcgtgttgt	tcaaaaactg	tttgcatctt	180
gtcataagag	cctcgtaacc	ccaaggatct	ctgctatgcg	tattgcttcg	tgtggaacat	240
cgtttcgctc	acttcttcaa	gcgtatagtc	cacacatttg	ctgagggaaat	ttactgtaga	300
ggttaagttca	ctttgtcttc	tctaaaacca	cgcactttca	agcgcgacat	ggaatgtcta	360
tactgcata	atgcgtagtg	acgagagatc	ggtctttatac	ctgctcaata	tagccaatag	420
tccactgaca	atggcttgtc	ctctacagga	ttcgttgtcc	ttgcagggtc	atcgactaaa	480
acgagtagtt	ctttccctgt	ctggcctcat	cggcaatgga	cgaaagacac	atcattttccc	540
cccgaaagag	gaaagccctt	gtctaataatc	ttgtgcatct	ccaagtgaag	catcactttt	600
tctacagggc	atatctctgc	cttttgtgcc	ggcacatgaa	gccatattga	tagaggatct	660
gagctaattgc	aactccttgc	aacagccact	ttttcctgcc	atgttagcac	cggtaatttaa	720
ggttggcaga	gagggagggc	tatatctacc	ggctggaact	tttctccttt	tttccccagg	780
aggcaaggac	atgtggatgt	accagtccca	tatagttcgt	aacactatga	ccaaaccctg	840
tttactccat	ccaagctgaa	tgaatagttt	gacctttgct	aaaacagatc	tatcgctccc	900
aacaattcca	gagctgtagc	caatcctcca	gataagggga	caactcgcca	gaaagtcgct	960
tacggactat	gtcttctctc	gcaaactttc	attgcggatt	tcgatcctgg	cgtcttctgt	1020
tgtttctttt	tgagcctgtc	tctcaactct	ctcaatgtct	ccgaatatgc	atcgataaat	1080
agaaatgagg	aattttcttt	tcctccggat	ccaaaacgga	aacgatagcg	acaaatcggg	1140
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ccatttcggg	aaaaagctct	gtcggttgag	acgttcatca	ttcgtcatgc	ccacagcacc	5520
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ggtatttccc	acatgagtga	tttcgcctac	agcctcta	aatctccggc	aaataccgga	6000
gccaaaaatt	ccacattgtc	ataagcaaga	agaggccttc	atcccatctc	tgcatgataa	6060
ggagttctgt	ggcaactctc	cgaagagttg	gagcatgcga	gccccatcta	ctaagttacc	6120

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tttcttcgat	ttctgccact	aacagtctgc	tgccattgcc	atcaggggct	ggaagttctg	6360
tgttgtgcct	tatagatgag	attcccaa	tcatcgccaa	cacttcctt	gataaaggca	6420
agtcggcacg	ga					6432

(2) INFORMATION FOR SEQ ID NO:1010

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

agaccgtttg	ctttggacag	atcgagttct	gtcagcagat	tggcaaagcg	tcgaaagcag	60
tcaggccgggt	acaattgcta	atatctataa	aggtagcaca	tagtcccctg	cagaagaacc	120
tctaaacaag	aatttggcca	ttttgcctag	acgatggcct	ttgtttgtct	gaactcaaca	180
tcacgaaact	cacctgatcg	agcctctccc	cccgaatcgt	acttgccgtt	tcggttgagg	240
tctgccaaat	gtcgttggca	tagccatcct	cggcttctat	tttgattgta	cactcacatc	300
ggcttcactt	agctccatga	taatgcgctc	gccatcgacg	ggtcagggaac	tttctgtgct	360
gaggccgggt	gaaccgatcc	gaagaagccg	gaaggattac	aagggctgag	aatagcgggt	420
ttcttttcat	aactgggttag	ttttggtttg	tgaaaaatgg	ttagtatttg	tactgatctc	480
atgttttcaa	atctcattgc	caattcggcc	ggagggtttg	tagctgccat	tatccgaggt	540
ggaagaaaaa	acgtgtcttc	cattttcatt	tcgtcgtagg	gcaacgaaga	aagcggatgg	600
atctgttttg	gtttgtgcgc	ctttctctgg	atagcgcttt	gttcgaactg	cgtcaatata	660
gaggatttat	ccttgcctta	ggtaagcaaa	tatatagagt	atttcattga	tattgggacg	720
tttttctcct	aaatagtcta	tttataaaga	gcttngggca	gatcgtatgc	tcgtcccaat	780
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ttctgttggc	tcatggcgat	gatgcacctc	ttgggcagga	agtcactatg	tgggggggaca	960
gccatggagt	ggcgccgaac	aagtgcgcgc	aacgctgggt			1000

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 755 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

gtgaatatct	tcgccgtact	ctttgtagta	gtgggcagct	atctgtctag	gaaagggagc	60
ataaggcgat	agcattattc	aaaacatgta	gagccatgga	acatatatac	tgtgcgtatg	120
ataatagaca	taacccaaat	aagcaccaag	acgattcggg	gaaaaaatcc	catcagatcg	180
agatgtgcaa	tgctgaaacg	atggcagtc	gccaaactgc	agcatgccat	ctattgcggg	240
taacaggcgc	atccagcgta	atacggctcc	tctaaaaaac	aattcttccg	taatcccggt	300
attattgcaa	tagcaagcaa	agcccaacc	ttgcctccct	gcacatctcc	tttatcaggc	360
ttgtataatg	ggcaccgcta	cggtcgattt	ctcttgccaa	gccggaggga	gaaagggcag	420
aaggagcttt	atacctttgg	tgtttaatact	acggccaaaa	gacatccggc	ataagagagt	480
aacagcagta	tgctttgcgc	caatcgatct	gatacggttg	taggcccaca	aaagatgtag	540
cctgtcagaa	aataaaaagg	cttgccatac	agccctctcc	ccgaatacac	gacgctgaat	600
aagcttgctg	ccaatagcaa	cggcaagcct	tcctgtcgta	cccgaataga	gtaggggcta	660
agtgaagtac	agagatcagg	agatagcaat	aatcagatc	agagcaagat	gactgagtat	720
aggccaatct	ttaaaaganc	ctttttcntt	gctta			755

(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2351 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...2351

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

gggcccactg	ataaagcagg	agtatggaga	ctgcgaatct	atttcggccc	acgtttataa	60
gcctcgtgca	tgttgtgtac	gagctttgtc	ttgtccaaac	gatgaccagg	tattccgaaa	120
taaaaaaacat	ggctcgcttc	tgtatcgctg	atccacccat	acacatccgt	tctcgcacac	180
ccctatttcca	ccctcgtaat	agccaagtcc	gtaccggtca	tgtcgcccg	attctctact	240
tcacgcggtt	gtaggtagct	atatgaatgt	atggaagggc	cgatccgata	cgttggcatc	300
gggatatgcg	gctctgatca	cttcgttaat	gtcctgtccg	ggcgaagctc	tatggcatcg	360
ccacccactg	cacgcgatat	ttcgatgaag	cggccacctt	gtccggatag	gtaatgggag	420
taaagttcat	ctccggtttc	gtcacgctg	cttgggtgtg	tgtttgattc	tgtctaatat	480
gatttgtctg	tgtccatgat	gattacttct	tgatattctt	cttccacca	ttattgaaca	540
agtagaggca	aagcgaggca	attcgcgccc	cttgcccat	gcgttcagcc	gttgtagacg	600
aggaaccgag	gcagactgtt	ggccatggga	gccatttcag	agccgtattg	aaacgccacg	660
gactatccat	caggtatttc	ataccgccga	catcagcttt	ttctcttggc	tggcacgccc	720
caaatgatcc	aaatctgacg	ccaacgatag	atctgctcac	agaggctcgat	tttcacaggg	780
cacaattcga	acaggagaga	cagagcgagc	aggccgatac	attatcgcta	tacgacgcgg	840
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gcgtttttac	gtgctcctca	tttcgatgat	gtccgctctt	ccgttggtcca	cgatgatata	1020
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cttattctcc	aaaagcgggc	agccgcttcg	ctatgcttcg	tactcataag	tttgctgcta	1860
aattttctact	gcatgaattg	tcttgatcgg	caattttctct	ctgtctatca	cccctgcata	1920
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gcaccttgtc	atgccccata	caggtggatc	ctccggctcc	tccaccgagt	acataccgcc	2040
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aatagccgcg	caccttggtg	tggtagcggtc	ggtgcacttc	actgggggtg	gacagagcag	2160
ttcgcgacac	ccgtggcaac	tggtgtgcag	gctcacctta	tgggcaatcg	ggaggggagg	2220
ctgggtgatct	tcaggtcatc	gtgcaagaac	tcgctatata	ccgaaccttg	gctgccgant	2280
tgcagacatg	tctgtcgggt	ctgggatatg	atcatagttt	tctttcacga	aagcaacgca	2340
actgaccggg	g					2351

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

taatgtcttt	tctccccagc	aggatagaga	ccctcacgga	cgcaccggcc	ctaccagcat	60
accgaaggcc	atcaggaaga	tcaggattgg	gaagggtgaag	ccaagcccga	caaggcatat	120
tcgctcaccc	cgttcccgat	gaagatgggt	ctacgatggt	gtatagcgaa	ttgactgctg	180
taccaccac	cgccggagag	catagtga	caacagtttg	ggtatctttt	ccgattctaa	240
tgcttgatct	gttgggatga	cataaattac	ctctttatgc	tccggatcgt	tatcatccgg	300
gagtga	gcccgcagca	tatactgcag	agcttccct	ccttacaaaa	tagaccgaaa	360
acctctcgg	actttcggtc	ttgttcgggt	gccttccct	tggacttgaa	ccaaggaccc	420
tctgattaac	agtcagatgc	ttaaccaact	gagctaagga	agaatagaaa	aacggcttgt	480
gacagcgctt	ctcttgggct	cgaaccaagg	acctctgat	taacagtcag	atgctctaac	540
gactgagcta	agaaagcctt	tcgtttttcg	tgatgcaaag	gtagtgcata	tcccaaacat	600
gcaagagggt	ccgcaaaaaa	aatacattca	gatattaaac	cttctcgcca	ccacatccgt	660
tggggcatct	catccatatt	catgacgaga	aagggtgcc	gcctccagac	ggtttaggct	720
cgtgaatttt	ccattcgatg	ctccgaaaaa	cgtggcgca	gaattttttc	gtattgggtc	780
cacagttttt	atttcccgag	ccaaacgaaa	atttacgcgc	gtgttttcag	gattacgaac	840
catgacgtgt	actgaaaaag	ttgacagttg	ggtggatagt	tcacaatggg	tactaggtct	900
tctataat						908

(2) INFORMATION FOR SEQ ID NO:1014

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

ttctttgccc	atgggcatct	gacgagacgc	aaggcttcag	cttgggcat	aagttttttg	60
attgcgaacg	tattcccttt	gcccgaataa	agtaatttgt	gccttggttg	ggtgggactt	120
gttctcattc	gccaaccgga	aataattgga	aacaggaata	atataatggt	ggaaatatcc	180
gccttcggtc	aattgacgac	ccggcacttt	caccatagca	taatacaaga	aaatgactga	240
tcgagagaca	gaattattaa	catcagcacc	gaggaggaaa	tgaagaccgc	ctactcgact	300
attcgatgtc	ggtgatcgtc	tccagagctt	tgcctgatgt	ccggacggat	tcaagccggt	360
tcatcgccgt	gtgctgtatg	ccatgaacga	aacggcaatg	tgtacaccat	cccactcgca	420
aatgcgccaa	tgctgtcgcc	gggtgctggg	acactatcac	ccgcatggcg	actcttcogt	480
ttatatggcc	tgggtcggtat	ggcacagccg	tggagcctgc	gctatccgtt	ggtggacggc	540
agggcaactt	cgggttcggtg	gatggcgatt	cgcttgcctg	catgcgttta	ccgagtcgcg	600
cctcagcagg	attgccgggtg	agatgcttca	ggacataata	aggaaacggt	agacttccag	660
aacaatttcg	atgatacacg	tcaggaccta	cggttctgcc	gacacgcatt	ccgaacctcc	720
tcataaacgg	ggcttcggta	ttgctgtcgg	tatggctacc	aatatgcctc	cccacaattt	780
gtccaagcta	ttgacgggatg	tgtggcgtag	atcgaagcag	atggcgacat	agagtggagg	840
gcttgatgca	gtatgtcaag	gctccggatt	tccccacagg	agattcatat	acggctattc	900
cggagtgaag	gaagccttcg	agacgggacg	agccgtgtcg	ttatcagaag	tcgtgccgag	960
atcgagc						967

(2) INFORMATION FOR SEQ ID NO:1015

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 658 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

taaagggtgca	tggatgatct	ctatgcaccc	ttcgttttga	tccgatacgt	cgaactcgat	60
tgtcagtcga	gcgatcgagc	cactgacggc	taatgtgctc	gagccaatta	gctcccacgc	120
ctatatcggc	aattagcggc	acacgaattc	gggcatcacg	ccttccacgg	caacgaagat	180
gcatacgaga	agcattcgat	gcgttggaag	aggcaaatag	cttgccaaat	cgaggaaatg	240
aaaagcgttc	gtagagctta	aaatgatgcc	gatatccttc	actacataat	ctgttgcatt	300
tatttggtgga	atgtgcagag	cgacacgatg	tccgaaattt	gctaaaataa	tgtacctttg	360
ccgcgctgat	tattatcaaa	tagtgccgaa	cgtttgattt	tcagtgcggt	tttgtccgag	420
aggagcagcc	cagtgtccgt	ggtaaagctc	ctgatgcacc	ggccgaatcg	acagaaaaga	480
tgatcgttca	caaattacta	acaacaaa	aacaagcagt	ggatacttta	agcttcaagc	540
catttctgcg	aacaaaagca	actgttacga	aggaatgggt	cattgtagtg	ctgaaggaca	600
gacacttggc	cgtatgtgtg	ccaagggtggc	aaagctctgc	gcggcaataa	caagccca	658

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

cgtctccggc	gtacatgtct	ccggtgcagt	acctttctct	ccaaggatct	ggaatagtag	60
tgccggcgag	gcagttcggt	ctcttgccac	caaagacgag	aggcgccatg	tcgtgcgtag	120
aggtggtaca	taccgaacaa	tagggctccg	actcatatcg	gcaaagtcct	gtcccggctc	180
tttgatatt	ctttccaaat	gagggatagc	agttgcaact	gttccattac	gacaggcact	240
gcaggggtat	cattcccaga	tctctacac	agacgagcat	atccgtggag	gaaacagcgg	300
tatcagccgc	gacagtgcct	cttgcttcca	caggtcatcg	ttcgcttggtg	gaagtagtcg	360
tccgacagac	gctgccaaagc	tttcttttcc	tcaagctcag	atgagcatag	cgaaaagact	420
tttcgaaatg	gatgcgtgga	tgaaggcccc	gggcttgccct	gattctatta	cgaaacatac	480
ttctgtggct	cacgcatcaa	acctctgac	gtgtcctctc	ctccgacaac	ggctgtaggt	540
ctaacgctgc	tatatcggtc	tgatagaaat	tcttcgtcgc	cagcgtatat	aatccgaatc	600
gaacggacga	aggtatcgac	agcatacttc	gcttgcaagc	gtccgaaaat	ctgcttgagg	660
tcactctgcat	gaacgaagcg	gaagggg				687

(2) INFORMATION FOR SEQ ID NO:1017

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2996 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

ccaggcgaag	tgcatggcat	ctggcgtatg	aaggagacca	aatgatgtcg	gcctttcgtg	60
gcacaggctt	tcgtcgatgg	agatcgggta	gtagtggtga	gggtttcgtg	tatcatccca	120
atgagaagaa	acgcgatctg	atgcggcgat	ggaagcggca	ctatacagca	tgcgctccgaa	180
ggccgagaaa	gagttcatcc	gtccattatc	aggaaaagctc	gctggactac	actcaaataa	240
atatcgaaac	ggcttaccga	caacacacga	agattcaatg	caatggagaa	taaaagctga	300
aagtggccat	ttcccatggc	gacatcaatg	gtattgggta	tgaattctgc	ttaagacctt	360
tgccgaagcc	tcgatactgg	atctcttcac	gctgtcatat	acggatccgc	caaggtggca	420
gcctattaca	ggaagacctt	gagttggatt	tggaaagttg	gaaccaagta	tcctcggcaa	480

ccgaagcggg	gagggcagag	tgaatctggg	aaactgcata	cccgaagacg	ccaaagtggg	540
atgggctgtt	gctctcctca	ggccggagcc	tatgcgataa	aagctctgac	atggccatcc	600
aagccgtgaa	gcaaggcgat	gcggtatgtg	tggtgacatg	ccgatcaaca	aagcagccat	660
gccgcaggac	atctttccat	acaaagccat	acggaatacc	tgcaggccca	agccggcata	720
gagggcgaa	atgctgtgat	atcctggcgc	aggataagct	ccgcacagct	ttggtaacga	780
tgcagagccg	atagcacgcg	tgccatcgct	tatcactcgg	gagcaaatcc	tggaagctg	840
aaggctttcg	atcgcagcct	ccgcatggat	ttcggatatg	tagtccgcgg	atagccgtca	900
tggctctgaa	tccgcatgcc	ggcgacagcg	gctgacggc	accgaggaaa	gcgacacgat	960
ccggccggcg	gtgcaagagg	agaagaacag	ggattgttag	tggtcggccc	ttatgccgct	1020
gacgggtttg	ggggtcggat	atggctctgc	atctcgatgg	cattctgtcc	atgtatcaga	1080
tcaggggctg	atccctttca	agactctctg	catggacaga	ggggtcatgt	gacggcaggg	1140
ctttccatcg	tacgcacttc	gccggatcat	ggtacagctt	cgacatcgtc	ggcaagggcg	1200
aggcttcgcc	cgattctttc	cgcgcgccat	ctatcaggcg	atcgacattt	atcggttcgg	1260
ggcatcggtg	cgatggctac	gcgcaatcct	ctccgaaaga	gttatttcga	gcggggcaat	1320
gacatgagaa	attgccgcaa	acagaagatg	agcattaatt	ttaataccct	atgactctat	1380
gtttaaggat	aagactatcg	tttacacatc	cgggacattc	gtatgttcca	ctacaaccat	1440
ttgcgcatga	tcaactatgc	gcgcagtttg	cagacatcct	tatcgttggc	gtcagcacgg	1500
acgaactggt	cgcttcataa	aggcgccgcg	cattatcctt	tttatcgagc	gcttgcaaat	1560
ccttgaagcc	tgaagacacc	ggacatcggt	attccgcagc	atacattgga	tcacacgaga	1620
tcgtcaagaa	gctgaatata	gacgctttcg	tagtggggga	cgactgaatg	gcaaatacga	1680
ctatctgaag	gatctcggcg	ttcaggctct	ttattccctt	acgggacggg	cgtttcctct	1740
acaaaaatca	aggagactat	acacatagct	atgccaaagc	gctgaatgaa	gagcgtcagc	1800
acaagcccaa	gtcgtccaaa	acatgtagga	attatggcgg	tcggatacgc	gttgattacg	1860
ggggaaccaa	ggggatcggt	ctcgcagtag	cccgctctct	ggcaagcaga	gatactccct	1920
cggtcttacc	tacggacatg	atcaggagac	ggcgcgagca	tggcggccga	attggcagag	1980
agcgctccat	ccgtagagct	gctgcaagcg	atgctaccga	tgcgaaaggt	atcgacctga	2040
tagcgggaag	ccttgagcga	gggatattac	tctgcaagct	cttatcatga	atgccggcat	2100
cacatgcgca	cgcttttcga	ggagatgact	atcgacgaat	ggcagcgcgt	attcttgcca	2160
atgtccattt	ccccaccttc	ctgatccaac	gccttctgcc	gcgtacgagc	gcaacaacgg	2220
atgtatcate	tttaccggat	cgctcatggg	aataaaaccg	acggcatggc	tctgccttat	2280
ggagtgaagc	aatccgctgt	acagctctga	cccgcaatct	ggtgaagcat	ctggagcctt	2340
atggcatccg	aggaatgccg	tygcaccggg	atttgtagat	acggaatggc	agaagaacaa	2400
acggccgaaa	tacgccgaaa	tatcgagaat	aagggttgctt	tgcatcgctt	gcgacaccgg	2460
atgaagtagc	cgaagctttt	ttatttttgc	tcgccaaacgt	tattgcaatg	gtgaggtctt	2520
gactcttgat	ggaggctaca	gcttccycga	acagctcaga	catgaacgaa	aacgacaagg	2580
agtaccaagc	ctctctcaat	cactggagac	ggaaaatata	attgaccgga	aattctaccg	2640
tcgatgggtt	tttactttgc	caagctttct	agtcgtacaa	gggtaacgcc	caatagggtta	2700
cgatcctgtc	catctttgtc	ggattaggcg	gcgggctgtg	cttctgcata	ctccttatga	2760
tctccggttg	gctgtggccg	gtattctatg	tatgtagtgg	ctaatatcat	ggactgcata	2820
gacggacagc	tggctcgtct	gacgggatca	agagttagat	cgggcgtatt	ctcgacggca	2880
ttgccggaga	ctttgggttcg	cctgcatcta	tatctgcttc	atcattcgct	tgacagcaga	2940
gtatcccgat	gccttaagtt	cgatgaccac	cggtattcct	gaattgccgc	ggtctt	2996

(2) INFORMATION FOR SEQ ID NO:1018

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

cccaacaaga actcggtaaa aattatcggt gacaatacga ataaatactt caggcttact

tcgcttacga	ctcgaagtaa	atcgggtgga	ttcacctgtc	gcaccttcgt	ttcggcgata	120
cgcccatagc	ttctacctac	cttgtgggac	accggacttc	gtggcttgcc	acgtgcctgc	180
ctacttgctg	atgtacacgt	gctgaaaggt	ctgaagaaaa	aaggaacttt	cctgctcaat	240
tcgattgggc	tccggaagat	atagaacagc	atctgcccaa	caaggtaaag	cgtttttggc	300
taagaacaac	atccgattct	acacgattaa	cgctactg			338

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

gcaacagttc	atattggttt	tcaaaacatt	ctttcattat	atttgaccat	aacaaatatg	60
attatgggac	agtattcaga	agatttttatt	ttga,ccggaa	aaacgaaaag	gctgtatttt	120
ccttgaaagt	atatagagga	gacggcaggt	tcttttggcc	atgaattgga	aaaaggggcg	180
tccccctcgg	gatttttcgg	tttttccata	ngagtacaaa	gagccggatg	gcgatcgcta	240
ctatgtttga	agaacaggct	ttctttcctc	aatcaggatg	gaactgtgtg	taaatggcca	300
agtccctcct	tttgtctcct	ttccaaatgt	ttcgctgggt	acatttcctn	gcaatgcaga	360
tataaaacgg	agctttcgtc	tatgtggtaa	aaccgttttt	atgaactatt	atgatgaatt	420
gagttatggg	gaggagcagc	ggtggaggta	gtattgcata	gcgagaccta	cccggattgt	480
gctcgatgtg	cattcactcg	cggatttcatt	tcgtgctcag	cttttgtcga	tāga	534

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 877 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...877

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

gccgaaagga	agacctatcg	gcagcggcat	atcggcgata	accagattgc	cggacctgtg	60
acgatgtctt	tctccggatg	caccttttgc	ttggaaagtt	gatatagaag	tgaggatgat	120
cgtgattgtc	gcaggtcgta	taacgcctcc	ttgcataaac	atgatattgt	cgggcatctt	180
cttggtctta	ccggcatcag	atagccttcg	cccttgctgc	tgatcactc	cgctgataat	240

ccccctctccg	tgcggaagtt	gtaggtaaag	ttcttggctt	cgaacgactg	ctctcatcct	300
tgaaaacag	aaaggccatc	ggataaccgg	ccgtatcgag	gactagcgag	tataaaccgt	360
actgctgtcg	gtattgagat	acatgaagtt	tgctccaagc	gactcttttg	atagctcaca	420
tagctcttgc	cgaaaagata	gcacgattct	gtccgagcaa	aacgatggaa	tcggcgagctt	480
cgtactccac	atatcttcca	attcgaattc	atcgtcatac	acgctatctt	gccgcatcgt	540
ccggtggaat	cggcaggaag	ggaatctcga	aaagcactgt	caggaatagt	tttgcgagag	600
gcaccgtgtc	tttcgctgta	gaatcagaca	gcgcagctgc	cgacggtggt	gcaatccgac	660
tgctccggcc	ataggacgtt	ccgcaggacc	aaagtagcac	agagcaatcc	gacaaggatt	720
acgggtaata	accataaagt	ctggaacaga	gacgggatac	tctcattcgg	attcattcat	780
actccaggtg	agcaaaggta	aaaaagaagt	tgtaatacac	gatgaggttg	tacggctgcc	840
ccggggccga	cgcattaaat	tggtttgcgg	cttcatt			877

(2) INFORMATION FOR SEQ ID NO:1021

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 803 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

tcccagtggc	aaatcgctgt	ggtttgccat	cttcgtcttg	gcgtgctcgt	tgagtgtacc	60
gaagaaaaga	ttctgcagta	tggcattgta	ataattccct	cggtggtgct	attgggatcg	120
aaatccttga	ggatggtctt	gaggaagcaa	tatcgaaaag	atgctgagga	acagctcct	180
tttgcttgat	gaaccaacaa	acataatacg	cgtaattagg	cggattatct	tcgtttctag	240
atctttctat	catcttcact	tgtactagta	tcattaggga	aactgatatc	ggcccgggag	300
atatggccca	ctggtaccac	tcgaagagat	ccttgtagaa	ctgttcgtca	gtgcctcgac	360
ggagaaaaga	tcctcaatat	ctttgagttc	gagtcctggc	gttgtttctt	gtcgattaac	420
ttctggaagt	tgtctgctgc	ttacgacagt	gctgcccagg	gccgagcaag	aagggtgaaac	480
gcttgctgct	gtaatgtcgg	actggctcct	ccccttgtyg	cagaaggtaa	accgccattc	540
cacaaaggat	tgtcctcgta	gtggaatatc	ataaaaagcac	tcgaatagt	tcattgatac	600
cctgataata	ttctggatgc	caaccttatt	gcgagcctct	tgatctggct	agataccgtg	660
atgtcaaaga	tgttgatagg	attgaatcca	tatcgatatt	gccgatatgc	tgatctctag	720
gatgcccggt	gcttggtcgc	tggtcgtagg	tcgggtacat	ctctaggata	gataccatg	780
accacctcaa	atagctctga	cca				803

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

tcttttggtt	ttcattttca	tcaaaattat	tttttggtgc	atttgcataa	tttcttttga	60
ttcatgctg	gcaaaggtag	cagcaataag	aagaaaagga	ataaattcag	tataaacgaa	120
ttgaagccga	acaggaggaa	tagacaaggc	cgaatcttcg	gattttcttg	ctttcccgat	180
attggaagta	tccgtacttc	gtgctcggct	gtggccgaca	ggcccatgca	gcgaattaag	240
aaacgttgta	ggctgtttct	tgctccctgc	acgatgctgg	aagccgttgt	cacggacaat	300
cactccgtgc	atgatgcagg	aagccgttgt	cacgtgacaa	tcacccgtgc	acgatgcagg	360
aagccgtcgt	cacgtgacaa	tcacgtcctg	cagatgcagg	aaacgattgt	cagccgacaa	420
tcgttttcgcg	cacggctggt	tgacctttcg	tcgcctgaca	atgcttatat	aaaagctggt	480
tcagggggca	tgtcacttga	cactgctacc	aataacagat	taataatcaa	tcaaatacac	540

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 777 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...777

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

ggaaagacta	ctttcacgct	cggattgcta	cgattgcttc	gaaggcgctg	ctcaaagtgc	60
agcctttcaa	atgcgggtccc	gactatatcg	atcctaagat	caccgccttg	catgcggaac	120
ggaaacggtg	aatctggatg	ctttcatatg	agtcgggagc	atatcgcccg	actctatgat	180
cgctacggca	gtgaagcgat	gtttctattg	tggagggagt	gatgggcttc	ttcgacgggt	240
acgacgtatg	acgggtagca	gtgccctttt	ggccgaaaat	ctgcgcattc	ccgtttgctt	300
ctgatccatg	caggcagcac	ggcctattcc	gtggctccga	tacgtatggc	ttcaaacact	360
tccgcccggg	tgtggctccg	gtgggtgtcg	tttcaataag	gttggctccg	cttcgcatta	420
tcgctatctg	gaggaagcag	cgcggatgcc	ggtgtggcca	gcctcggtta	cttgccgaag	480
atgaaagatt	ggaaataaccg	tcgcggcatt	tgggcttgtc	tgtggaggat	ttagtccgta	540
tgattatttg	ccggacaggg	tggcagatgc	catcgagaag	tatgtggagt	ggagagattg	600
cttggtctga	tggcctccga	tgtcgatccg	gttatcgaga	agagagcttt	acggagtctt	660
ctttgcacgg	gaggaaatgc	attgcytggc	ggatgacgaa	gcattttaact	tcacctatcg	720
ggagaatatt	cgtcgctcga	aagccgggaa	gggtttgttc	gattcagttc	tttgccg	777

(2) INFORMATION FOR SEQ ID NO:1024

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 773 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...773

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

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ggaagcttcc accggttaaga atgaggctat cgagcttgcg gatcaggata ggctcgctac      60
tgtgncaaag gtgtcctcaa ggctgtgaag aacgtaaaga agtgatagat cccgcactct      120
gcggaatgtc tgtattggaa caaacagtat tgaccgcaag ctcatcgaat tggatggcac      180
caaaacgaaa agcaactcgg agcaaatgcc atgctgggcg tatcactggc cgtagccaaa      240
gcagcgcagc ttatttgatg attcctctct accgatatat cggcggttcg aacactatgt      300
cctgcctggt cctatgatga atatcatcaa cggcggttct caccggacgc tccatcgca      360
ttccaggagt tcatgatccg cctgtggga gctgctgctt ccgtgagggc ttgcgcatgg      420
gtgcccgaag gttttccatg cctcaaaaag gtgcttcacg atcgtggtct gactactgca      480
gtcgggggat aggaggtttt gctcctgcc tgaatggtac ggaagatgct atcgaatcat      540
cctcaaggct gtggaagctg ccggatacgt gcccggttaag gatattacat cgcaatggac      600
tgccctctct ccgagttctt caaggatggt atttacgcta cactaagttc gaaggcgaaa      660
agggcaagaa acgctctatc gatgagaggt ggcttatctg accgaactgg ttggcaagta      720
tcccatcgat ctatcaagac ggatgagcga aaatgactgg gaaggatgga aga          773

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(2) INFORMATION FOR SEQ ID NO:1025

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 893 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...893

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

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gcgcagtagc cgaagcatcc gattcttctg cctgcaacaa tatatacttg ccacgccatc      60
gaagctgaga gcatacctcg actgccccaa agcttttgtt ttatggtcag tagttcgtct      120
gtaccatata ggatatcctc gatcaactct tccgggcaaa tcgcgcaaag gcgttttgat      180
cgtcacatcg tacttccgca caatgcctct atttgccaaa agaaaagatt gtttttgat      240
ttgccaatgg ctcaatgcca ctttcgtata tactcttctc acgagatgga atgacttgct      300
catatccggc agattcactt cgccccagcc cttacagcgc ggaaatagcc atgaggggaa      360
ttgaaactga aattgtgctg agccggatcg cttacgaaat fcccgtatca ggacacatca      420
tcatccgact aaaatgtccc attcgttttt ttccgaatcc aacaccatca caagcccttc      480
gccttcacgc tagccagtgc caagctctcc gctatacgtt tgctttgatt cgatgctacc      540
acagcttgtc gatctgcact tcgacgtcat gcattttata gcgatcaact tcatcccatg      600
caaaatctcg cgaatctcac cattcacgcg tacgtgcgat agcctttctt acgaagcctt      660
tcgaatagct ccttataatg ccccttcgcg agcgaaccac cggggctaac aaagctatct      720
tacggccatc atactttcca aaatgaggtg gaagatttgc tctcgggtgt atttcaccat      780
cttcttcttc cggnataaga ataagcctna gcaacacgag catagagcaa acgaagaagt      840
cgtacacctc tgtaacggtg ccgacagtgc atctcggatt ccattggctcg tct          893

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(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 341 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...341

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

gatagtgcag	acaaggtgac	ggtggagctc	gtggacaagg	cgaagggtcac	tatatgcctc	60
gtatgaaggt	caaaactgct	ctgaaggggc	tccgtatgag	cgtgccgagc	gtgtccttga	120
tgtgccttac	gcctcttcgg	tcaagccaat	agaacaacag	cggtggatct	tcctctcgg	180
acaacaacga	acacacgggc	tgtaaacaac	gcatttaata	gtgacaacga	taaatactctg	240
aacgtcttat	tcgacaatac	atccctaaag	attcttcgtt	catcgatata	acgacaaaca	300
gatctccatt	atgagacctt	tgaaaaataa	taagtggagg	a		341

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3098 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3098

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

cgacaggtag	gcgatctgtc	gcaaagcatc	ggattggggg	cgggatataa	cttgagttagg	60
ttcgatagaa	aacgaattga	tgctgctcca	ctcagcgaaa	agattcgtcc	gacatcgga	120
taaggggata	gtcctcttca	tccggttggg	ttgataagag	agcatggcac	gagctatctc	180
gcgagcctga	taagtttgcg	cacgagaata	gcaatatccg	aggagcata	ccctcttttt	240
tcgagccgat	gataaaacgg	ggaagatcct	gcaagatctg	ctcctccac	gaaaattggc	300
ttccgcttct	tctgatgatg	ccggcgacgg	aagataaatg	cagcgcttcc	atgccggtct	360
acttttagccg	gtggcacaag	ctgctccaca	tcgcataggt	ctgcatgaat	gtacggttga	420
tctcctccgg	caacttagga	tgggcattgc	catcgctctg	gcttcgcgag	tcatagcctc	480
acagaggatt	gtggcagatg	cttgtagagg	gagttgttga	actcgattat	ttcgggagtc	540
ttcgccaatt	atatggtaga	ttgacctctc	ccgatgtttc	ggcaaaatcc	gactgacgac	600
ctctgtgagc	agacgccggg	cggcatttgc	gaagcggata	tactctgttt	ggcatcgccg	660
acgaggagg	tgtacttgcc	gtgagcagac	tctcggacag	caggggcttg	aagttttcgt	720
actgtaagcg	gctggatctt	gaaattcatc	gatcatttcg	tggtcgatgc	gtaccccgat	780
tttgcataga	cgaagggggt	ctcgctcccg	tcgatgatcc	tgtgcaatag	agaggagcat	840
cggaaatgag	cattttgttc	tcttcttgtc	tgattccttc	gattgtcgcc	aaaggtcgga	900

gatgatacca	agccgggttca	gaaaggggaag	cactgcttgg	ccgtggaata	ctcttgccat	960
tccctgccga	gatagagtgt	gccatttcgg	tcagacactc	tttgagaccg	gattggtaag	1020
ccgagaggag	gctgcctggg	tggtggcagg	agtgggtttg	gcgtagagt	tggtctccga	1080
tcgccttctg	ccatcgccat	aaaggtcttt	gtgggaggct	tgacttccct	cctttgagca	1140
ccttggcaaa	ctctaagata	cctccttttg	tacccctttg	aaatcgtaga	agctgattcc	1200
ggctgtggcg	acgatttctt	ccgccgacgt	gcaatagaca	gacgtcgctg	ttcgaagcct	1260
tccatcagct	tggtatttcg	gtttgatagc	gatgaatggc	agctttgggtc	ggtagtttgc	1320
cttctcggt	agcaggagta	gctgttcttt	gaaaagctca	tcaccaagc	tgctatctcc	1380
ctgcggatgt	tatgtccacg	ccccctcttcg	atcaggtctt	cgccaaacgc	ctgatccaat	1440
tctcgacgtc	ggaggtatct	ttttctccca	gctgtgcagc	aagacggacg	acagcctgtt	1500
cgagcacggc	cttctgtctca	tctcgatccg	aaaaccaccc	ggcagtccca	attcatgaga	1560
gaaggcacca	ttacttcctg	aaagaaggag	tcaatggtct	tgactcgcaa	agaagaaagt	1620
cgtttagtat	ttcggtcagg	acttcctgtg	ctctgacttg	tagctgtcgg	tagtcagagc	1680
caactcctgc	atcagctcct	cggcgaaaag	ggacgtccgc	ccacagccag	actgtacagc	1740
tcctcgagaa	tacgtctcct	cattcggcag	tggtcttgtt	cgtgaacgtg	acagcctgta	1800
tataacggaa	agcccgcgcg	tacgcagggc	taaacgaaga	tattcgccgg	taagtgtatg	1860
agcttgccgg	aaccgcgccg	agctgtataa	atgcggagtt	gcttggagcg	ttcatttgtt	1920
tttcttgtgt	ccggggggcaa	gacgataagt	ccggtcatag	ggaagagagc	cagctcgcg	1980
ggattcttct	cgaagcgagc	gatagtctcg	gcgggatccg	atcgccgata	tagacatcga	2040
aaatatgccc	tcgcttatga	atagctcggc	agggatgcgc	ggagtccgaa	tagcccagct	2100
cagccatcga	ggaagtga	ataccaggaa	ttgcggccac	tgaagaaaat	cggataacgg	2160
gcacctgact	gacgagtatc	atcttggcac	aaactggctt	ccattgctgt	ccatcacccg	2220
attgcgattg	cctttataga	cggatattcc	tcggccggga	agaagccgac	cggctgaccg	2280
ttttgaagac	ggttcagtac	ctcttcactc	cggatacatt	gtgcttgctg	tcaagtcttc	2340
cggccattcc	ttgagtgtag	ccaccgggtat	gaagctgtcg	cgcaggcagc	tgatcatgga	2400
cgaaaaccat	tgaccaatac	gctataatcg	ggacgtaccg	atccgataat	tcgatcaaca	2460
taatgccatc	cagagagccg	aacgggtgat	tggtataccg	gtaaaggcac	cgccttgcg	2520
catctcttcc	aaatgctctg	ccccgtgcgc	cggtagcaga	cattgatggc	ggggtcagtc	2580
agtgcagcat	gggcaaatct	gctccacgca	gattgatatg	acgggcatgg	acggcggtga	2640
tgtccgtatc	ttgagggcct	tcagcaaccg	gcgcgtcagt	cgctcgctccc	ctcccgtacg	2700
ggaaaaagac	gaagtacatc	ttcttcggta	agaacttccg	gacggagtct	gacatgagcg	2760
atcggttatt	aaggatcttc	gagttgcctg	agctatgatt	accgcctctc	tttcagggtga	2820
tgtctgcaca	tggtctcgctg	tctctgatac	cgaggacgag	cactgtattc	agaatcagta	2880
tttcgaacac	gaatagagcc	aaatatgacc	gctcaagacg	ataagaaaaa	gaggaatggt	2940
cggccgttga	acgtaaggaa	gtccacgata	ttcatgatcc	ggcggtatc	ttacgcagat	3000
gctgccgaag	cgtttcgggg	atggtatatt	gcggataacg	gcctccaatt	ggtcgagaag	3060
cctttgcagc	cggggtgtcg	cacgttctgt	atcaacgt			3098

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 681 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

tatggtgcag	gccggcgctgc	tggaagagaa	gaaaaaccgg	atcatggaat	aatgggtgtcc	60
tccacacggc	cgttcaacct	gatgatgggc	aaaatcatgg	tatcggtctc	gtaggcctta	120
cgcagctcat	ctgntgggga	gtgctcagg	actgctgctg	acggtagcac	agatcgctt	180
cctcggaat	ctgtacgcc	agaggccctg	agtcggatgc	aggcttccga	cataacgggc	240
atggctcgtc	catgaatgca	gaggacttcg	ccgagatgaa	ggaagtgatg	aacacatcgg	300
gggcatcaac	ttcggagagc	tgttcgtgat	gtttctcacc	ttctcatcgg	cggctacctg	360

ctctactcct	caatcttcgc	cgttatcgga	tcattggtatc	gaacgacgaa	gacaccagcc	420
agttcatgat	gcctgtgatg	acctcctgat	gttcggcttc	tatgccgcct	acggcagcat	480
gaacaatccc	aaggatcgct	cgcattctgg	tgctcgctga	tccctttcac	ttccccctg	540
tgatgatggg	gcggttgccc	tacgacgttc	cgctgtggca	ggagttgcaa	gcacggcct	600
gctgtacgga	tgcttcgtat	tgaagagggtg	gatcgggcga	agatttaccg	cgtaggcgtg	660
ctcatgtacg	gaagaaagcc	a				681

(2) INFORMATION FOR SEQ ID NO:1029

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 669 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...669
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

tcgttcctgt	cttaccogat	ttcaatgcag	ccgatgcagc	aagtatagta	cgcattccga	60
tgccaagtat	ctcttcgtat	cggacaaaat	atgggagaga	tgatccgtc	tcagtcctt	120
ctcctgtgcg	gagccgtctc	tatccgtatt	atcgggtctt	cctggatcgt	acggagggtg	180
gcttgctcag	ccaggagtag	aaggattgag	tcgctctttc	tccgaacact	acccttccgg	240
cttcaggcag	aggatattcg	ctatgccgag	gtgtcgaacg	acgatctcat	cctgtgaact	300
atacctccgg	tacgaccgga	ttcagtaagg	gggttatgct	tcggccaaca	atctggccgg	360
caatgtaacc	tacgttaagg	atagagacat	tagttccgag	gcgagacgat	cctttgcttc	420
cttccattgg	cccatactta	tgctgtgctg	tcaacttctt	tacgccattg	actatagggtg	480
tgcatgtgta	atcttgggca	aaatcccctc	tcctctcact	ctgatcaaag	cctttgcagt	540
gtacgcccct	catttgatcat	catgggtgcct	ctcatcatag	agaaattgat	cacaaggcaa	600
tagctccgaa	aatcaagaca	ccgttaatca	aattcctcta	agacttctctg	tgctgaaaaa	660
ggtgatata						669

(2) INFORMATION FOR SEQ ID NO:1030

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2624 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2624
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

gtgaacgaaa	cggatgggtg	cgtctgtatt	ctggccggag	atatggcaag	cttcgcgcgg	60
tcggcagtg	ggtgagtc	gcattggatg	ccgggggatg	gaaacttct	acggattg	120
tatacatgaa	tgtacactga	ccgaggtgta	cgtcagcaga	aagaatccgc	cattctctct	180
ctggccacga	gcctaccctg	ttactttcca	atgggtatttc	ggaaaaaatc	aagttgaaca	240
taaggattcg	ggagatgtgt	cggctatttc	cggcactgaa	ctgatagaag	cactgatgct	300
tcgtttcgg	ctgtaggcat	ggacgagacc	attattgtca	gctttccaat	aaacgtgctt	360
tggcctataa	tctgggcata	cgcagtcagg	tatgtactac	gaagaagagt	tgattcgggg	420
cgatcgattg	gtggtgacgc	gaataactat	cgttattgtg	acaggcgaga	caagacagac	480
ttcgttgcca	tggagagata	gtggagattt	tgcggttggg	caaacgatac	gagctgtacg	540
atthagattt	gccgatgcta	ccatcagcct	tgtggagcaa	gggcgcgaat	agaagcaaga	600
ttgctcctcg	atggactgac	agccgaaaca	gccggctgac	tcatgcacaa	agacaaaaac	660
tgtatgatgc	agttgcttga	ggactaaatt	ctatggcaag	tatcccggcc	agacgcaaag	720
cgatcaaaga	ggatgtttct	tttcggcctt	ggaagtaaag	tatgcctatg	ccatcacctg	780
ccacaagcgc	agggaggaca	gtggaaacat	gtctatgtag	atatgggtat	gctagctatc	840
tgcctcatga	cgagcaactc	tgtcgttggc	tgtatacggc	agtaccggag	cttcggagcg	900
actctttctg	gtcaataactc	cgaaggatat	gtcccataag	aggggaaaaa	gtccttaca	960
aatggaagta	gagacctata	tcaccaattc	gttcacctgc	caatacgttc	ctttaccgtc	1020
cggcagcgaa	cgctgtcgtc	atagcgcagg	tatagatata	tacgggtact	cagcagttgg	1080
agagcgacag	gttgagggca	ttttcaaatt	ctgccaccgt	attatcgatg	tggtattggc	1140
atacaggcgc	gactgccaac	tcagacgact	atcgaattcc	atacaggttc	ggcttttatg	1200
gccgaaccga	attcgtgtac	gatggctttc	cttcgggaaa	gcogtggcga	gccaaagtcta	1260
tatcgctctg	atcgccattt	gaggatgtac	gagaggggag	ataggaacag	ttccagtttg	1320
gcgacttgcc	atagactttt	ttgctttttg	tatccagtcg	tacttcatac	cgtaccggaa	1380
ttgaagatca	tcggagcaag	gaatgcagat	tgtcttttag	gtgttttcag	ctcgattggg	1440
aaatagctgt	gtacgcattt	ccgcacgaa	gagtagtacc	actgcttgaa	agccttatag	1500
ccgaagtgg	aacgcaggcg	agcaaatcct	cggccactcg	atagcgattg	accgtgtcct	1560
tggctgcatg	aagacactta	gtttgttttc	caactcattt	ttccagcgaa	tcttcttttg	1620
cgatattggc	ggacgatcag	attgccgaac	atgatattca	ggttgcccga	cctcctttgt	1680
accagttttc	ggaaatgtag	ttctgtgaga	actgcccatt	gtctccatgc	tgaaaaacca	1740
gtagcggggt	ttgagttcga	ttcccggatt	ttttccggca	tgattattct	gtcggataag	1800
gctcccccat	cgagagctga	atgtcttgtg	gttttatata	ggaataatcc	ggtgcgaaag	1860
gcccgaattcc	gtacggctat	atgtgaaaag	atccaatcgg	cgatattgca	gtcggtcagg	1920
actctgcgtg	ccaattccac	ttctgcaatc	atgtcgctca	atccggtaag	ggaagaggtt	1980
ctgtccggcg	gacttggttc	aaacgcgagg	tatctcaggc	atgggtgattt	gccacattcc	2040
tgctgctaac	ggaccggaga	attttcggct	acgagcggta	gttcagata	gttcattcagc	2100
aggcggcgga	gactatcgga	gatgtcggga	ggctgtctgt	gtcggctaac	ggaggatttg	2160
cagttgggac	agtggaaagca	caggcttcgt	ggccatcgca	ccggtgctcc	cataaagcaa	2220
cagaacagga	atatggagag	gagatatctt	atctcattgt	agtcaaaaac	agtttttaca	2280
taaccatttt	atgccgggca	aagtatacta	ttctttattt	tccttttttg	gggaattttc	2340
cacaacagga	tagatcatat	ttttacgctt	tgtatcctgt	tttttgaaaa	agttaaaccctc	2400
ggagttttta	tttgactctc	ggggttcgct	ttcgtttatt	atctgtatcg	tgaagttttc	2460
tattgattgt	tgaaaacctc	acatgcgctg	cagaggctcg	aaccaaattg	cggtcgccat	2520
agccgttgtc	gatacgggct	acgttgagca	gaacttatte	tcacgcangt	attccagcgg	2580
ataagctgcc	tttcgcggag	tacggatg	accagtcgtt	agcc		2624

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 652 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

gaaaaatgct	gtaaactgaa	ataaactttac	catatcgttt	ttttataagc	agaatgcctt	60
ctgccggaaa	ataacgccgg	ttccctattt	tgaagacgt	aatttcccgt	ttcttcccca	120
cctcaaagct	gttttgaaat	gtattcgaaa	atcctcgcta	catcaaaagc	atcgtaatag	180
atttgttcct	ccttttcaaa	tttttctctg	gcatcatagt	ttcaggttgt	aaagattatt	240
cgtttttgtt	caataattcc	attgtttcgc	atataactga	tataactctt	ggcctacggt	300
ctttgacgtc	gaccgtttgc	atgattcttt	cgaccagttc	gtttaagata	aatgctcttg	360
ggcgtgaaa	acttcttttg	cgatttgter	cattccgtaa	gtttccgttt	ttctttgtct	420
tccggagatt	tctctccccg	gaaacytgca	tttcttttcc	cctgtcccat	ccgaacagca	480
tcaaaggtac	tccaacgggc	ttccatccct	tactttaagt	gcttttacga	ccgacaaagc	540
ggattctcat	ctttctctat	ggagaggatg	gccgccgact	tgcgctgagt	tccgaaccga	600
tatgcccacg	cagtttaatc	cgttccggaca	aaatggatag	acagataata	ca	652

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 972 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

tgatggaaaa	gtaagatttt	tcatagttaa	ggttttgggt	aatttgggag	gagtgaagtcg	60
tgagactcgc	tccttttatg	ttctgatact	cttgtctacg	tctcttgtct	gaatttatcg	120
ttatttttcc	ctctatatga	aagagttcag	tactttcgcg	ggcaacaaag	ttaatcgatt	180
tcaacaacaa	ccaattagca	ataataatac	gtactatggc	tctaagattt	atcactgcag	240
aagaacagcg	gagtttggtc	atcacacgca	caatgtcggc	tttagcgggt	ttaccctgca	300
ggcaacccta	aggtagtacc	tgcggcaata	gccaagcgag	ctatgcagcg	catgaaaaag	360
gcaatccctt	caagatcggt	atgttcaccg	gtccagtagc	ggtgctcggt	tggacggtgt	420
cttggcacag	gccgatgctg	taagtttcgt	actccatata	agtccaataa	ggatctgcgc	480
aatcttatca	caatggcagc	acttcctatt	tcatcttcca	tctctctact	ttggctcaga	540
tctgcgctat	ggcttttacg	gcaaggtgga	tgtggccatc	atagaggtgc	agacgttacc	600
gaagacggta	agatcctgcc	tactacaggt	gtaggtacct	gcctactatt	tgccgtctgg	660
cagaccgaat	catcgtaggag	cttaacacaa	gcaccccaaa	gaaatcatgg	gtatgcacga	720
cttgtgcgaa	cctctgatcc	gcctgcccg	cgcgagctgc	ctgtctatac	tccttcggat	780
cgtacggcaa	gccttatgta	caggtggatc	cggccaagat	agtcggtgta	gtggtacgag	840
cgaacctaat	gacgagagcg	attttgcgcc	ccttgaccct	gtacgcaggc	tattggggac	900
aatgtggctg	ctttcctcgt	gagcgaaatg	aagccggacg	aatacccaaa	gattttcttc	960
ccctgcaaag	cg					972

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

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ggggaatctg tcggaatagt gectgatttt cggccagact gttttcgaat attgttcttt      60
gaagagaaaag actcctacag gattggcgat atttttctca cggcctcttt ctgcgcgatg      120
gtgtattccc gttccatctg atccatttct cctctgctag ctcttcctg aggggtggaat      180
cgctgtaaat ttcattatct tgttcataat ttcggccatt ttgctgcgta tctcttgata      240
gatgtgttcg tcgggggtacc ggtgacggat tcgtttccgc tcttcatctt taccgatgt      300
gtccgtttctc aagaaaagaac ggaatgctga atacatcggg agcgtcatac aggagaggta      360
gcgagcgacg gtcgaatcct gtctgccttt gagctgaatg tgccgttgcg gatgatggcc      420
gaatcaagac ggggtgacttc ctgttttcga tagattcgag gaatacggta tcgccatcgg      480
cggcatactc accggtgccaa cgatcttgta tccggatttt cctttgtcag agcatgaggg      540
gacagcaggg tgatagccgt ggccgctatt gctatataag tcagcttctt gaagctgcga      600
gaagatttat tcgtttcatt ggttggattt gtttttgatt tcacactggg ggcaaagtta      660
ttgttttggg ctaaagtgcg gtatgcaccg aaagagcggc tgccgatccg agtatctgat      720
tctctcttct cctgctgatt cgggaaagt tgcacaaac caattccggg gtcagcacct      780
ttgcgacgat tcgtggcgaa aaaatgcctg cgggtaccata ctgtctgcat cagctgcgcg      840
tgaggaggta gaggacgaag gcgagccaaa gggctgtctc gccaaaggct cacgaaggag      900
gaagaaagtg gcgaagaaaa caacgaaagc actgtcatgg ctctccgcgt ggcttttgat      960
gcagtggccc ccacgaatac ccattccaca ggaaagcggc ctctatcact tcgtatttgt cactcagccc      1020
ctcctgcccc aaagcaaaac ggcgagcatg ctctatcact tcgtatttgt cactcagccc      1080
gaaagcaaa gggccgggaa cagcagatag agcaagggtg ccattgaggag acgaccgtcc      1140
cgatgcgaaa aaggcgatgg atcatcaggc gcaattgtcc gaccggcggt cacctatgta      1200
tcgtcccgtg agtgcttcgc cggcgaggcg aatccgtcca taaagtagga gaagagggtg      1260
aagagttgca tcagagagca tttgctgcc cagtgatctc tcccatagca gaggacgcag      1320
agggaaaaag agggctaccg taccgagcaa ggcggtgcca acaaaaaggt cgctccggtg      1380
cgaggtagg cttcgtagcc cgaagtatct ctctatcact tcgtatttgt cactcagccc      1440
cgctcgggta gcgaaaaaag gcaatgccc gagtaatgcc agaccgacat attgggcagc      1500
gatcgttccg gcggcaagcc tccactctc atatcaagtc cctgtacgaa gaaaatactc      1560
aggccgattt gaccatattg gaaacgatgg ctacaaccat cggaacgcgt gtgtcctcat      1620
ccccacatac cagccgttga agacatagac gagcagggtg gcgggctcc ccacagagcg      1680
atgcggtat attcgctgc ctctcgtcc atgttctctg acccgagcc agcagatacc      1740
cgaagcggtt tgtcagagga gctgtatgag aagaagcagg gctgcgaca ctgccatcgc      1800
gatgccacgt gccgatagcg tgtgatggct cgcacatcgc tacgcccga agcctgtgcc      1860
gtaatcccgt agtccccata cggaggaagg cgaagagcca aaagacgaaa tgaccacccc      1920
cgaagccaca gccactgcc cgatagagtc ggccgtgtcc tacgaccggc cagccctaca      1980
tccacgatgg agaggagcgg tacggttaatt tggagatgat attcggaata gccaaagcgca      2040
ggatgcgcct gttcatctac gccccgcggt cagtcgcctg cggataggga ggagttgtca      2100
tgaggttggt cagataggaa aacagtcgg cctgtcactc ttccagaatg tccagcccag      2160
ctcgaagccg gatgtcctc catagtacgg atcggggaca tgggtctgaat accgctactg      2220
ctgaaatccg tcatcagacg gatcttggcc gcagctcttc ggtcggagcc agttcttgca      2280
gccgtctctg attggcaaa tcttgccgat gatataatcg aatcgttcga aatcctcata      2340
ctccaccgga cggagagcga agtgagatcg tagccccggc gagcagcgtg tgcacgcatt      2400
cggcatcggc cttttccccc tgatggtaat tgctcagtc gcccgaaatc tgtggaagcg      2460
atcggcatgc cctgtctctt ctacatacga gcgaaagacg cctcggcaga cggagagcga      2520
cagatgttgc cgagacatac gaataggatt tatgtggctt cacaagcgga ctatcgaagc      2580
aaaggtagtc gcttggtcgc agtcgcaagc tgttggtcac caccgaaata ga      2632

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(2) INFORMATION FOR SEQ ID NO:1034

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 616 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

ggacaacatc	gtcaatacga	tcaatagtct	gcgcgatacg	attgctattc	gttcgctcatc	60
gttattcttg	tgggtctggt	tttcctcgga	cgatggcggc	cacatttatc	atcgggtctga	120
cgatccctat	ttcactgggt	gcctccctat	ctacctgatg	gctacaggca	atacgttgaa	180
tatcatttct	ctcagcccct	ctctatcgct	atcggtatgg	tagtgggacg	atgccattgt	240
agtgcgcgaa	acgtaacgac	acataattgaa	cggggcagct	atcccaagca	ggctccatac	300
acggcacgaa	cgaagtgggg	atctccgtta	tagcttccac	gctacgatgc	tggctgtatt	360
cctcccattg	acgatgattc	aggggcttac	ggtatccctt	tccgtcagtt	gggttggtac	420
gtgagtatta	tcatgattat	cctacggtag	ctgctctcag	cctgacgcgc	atgctctgtt	480
cgcagttgct	cagcgcgaca	naaagcaagg	acggctgcaa	caaaagctct	ttgtcccgcac	540
gaacgctttc	ttgattctgt	agaatcgagc	atatgagccg	tttcctgatt	gggactgtga	600
gacacagaac	cggtta					616

(2) INFORMATION FOR SEQ ID NO:1035

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1347 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1347

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

ttttggacga	actcatcagc	cgctaccccc	aacgttattg	tagagcttct	cgggacgctg	60
cactttcgct	ttccatcccc	cccctgaaaa	gagcttcacc	gtggcttcac	taatctcctt	120
ctaagtggta	agcgcgacac	aaataacctca	tcacaccgga	atcgaacaaa	agcaaagggtg	180
cctatatcgg	ctgcgtacag	ctgtaaaccg	cgacaaggtc	agtatccggc	tgcgacccga	240
taatagggag	ccaagccctc	cctggccaat	ggcgaatggc	tttacctcct	gcacccgacg	300
gcaacatgag	cggtacgcgc	atcaatgtgg	ttttaccgca	cggagcatac	aagtggacaa	360
tectgcgggc	atcgatcggg	gaacaaacgt	atccgcaatt	acgacatccg	tttcgagaaa	420
gctctctcgc	aagacaactc	gccgttcgcc	tcattcccg	atctcttacc	ttgacggatg	480
ttccggacgg	ttctctctct	cgatagaggc	cgactgctac	ccatctgcaa	aggctacgaa	540
acagctgctc	acgagcctgc	cacacggttc	gatgaagagc	agatccgcag	aatctgacca	600
aattaggtgg	tacaccgctt	gaagccgtat	cagtcgaatc	cggctcagtc	acgactattt	660
catcccgttt	tctctcattg	gccggtaagg	agagatgcag	tccaatcctt	catcgagaaa	720
gcctcctcta	tgcctaacgt	gaggaaaaac	cggctcgta	acgtcgcat	tctcctgcgg	780
cgagagcttg	caggaggagg	agcagagcct	ttccttctta	gccaatgtgg	cgacaaggaa	840
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ccccaccctc	caacacaagg	atcgccgtac	agagaaccgt	actacctgat	tcatggcgaa	1020
actcgtctgg	actccgattc	gactgccaac	actgtcaaat	gttggtctat	cacgactcga	1080
aggaatcaag	cagacctgat	acgaggggaa	acagagtaag	gtgtgtaatc	agggctgttg	1140
cattagaaat	cggatgatgg	tattccatgt	tcatagccat	ttgtatatag	acgtcagttc	1200

gacgtaagaa	aagaccaatg	gtcattcgca	aaatgccgtg	caatgggtctc	taataagcct	1260
ctgggcgatg	ttgtcttctt	cttgatggca	tacttgctcc	ggggctgccg	aggtattctt	1320
ccaaatgtga	agacgctcgg	aataggt				1347

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2990 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2990

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

aatgctctat	cggctcgggg	ctttgtacgc	tgcaatgtcc	ggttccggac	tgcactattc	60
ggtcttttcc	gggaaaagcc	tcagctcgat	aaggctgcat	caccgactgc	ttccgatggc	120
aaagcatcat	cccctgacag	attggttcct	acctccaaaa	aagaaatgga	ggccaaagga	180
tgggacgaag	cggatgcatt	ctcttttagcg	gagatgctta	tgtggatcac	ccgtccttcg	240
gagctccgtc	gtaggaagaa	ttttagaagc	cgaagggtct	cgtgtggcta	tcgtccccaa	300
ccgaactggc	gcgacgatct	tcgggaactc	cgcaaattgg	gactcctcgc	ttgtttttcg	360
gagtttcggc	aggagcgatg	gattcgatgg	tgataaatac	accgccaatc	gccgtctccg	420
cagcgaagac	gcttacacac	cgacagacgt	tcggatatgc	gtcccgaacta	cccaaccatc	480
gtttacaccc	catactgaaa	gagctgtttc	cggatgtacc	ggtcattgtc	ggggggatca	540
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tagcacagcg	attgatagcc	ggcgaacgtt	cgatagtgtg	aagagcattc	ggcagatagc	720
ctatcttggt	ccaaaggaaa	gacacctgtg	ccctgcgaaa	acgatcggca	tctcttctcc	780
catgagaatg	tttgtcggac	aaacgcaagc	aggcacagaa	cttccgagag	ataagataca	840
gagcaatcgc	tacgaggcag	accgcatact	tcaggccgtc	gggattctac	catcgtggtc	900
aatccccctt	ttccacccat	gagtacggca	caatagatca	gtcattcgac	ttaccgtaca	960
cgcgcctgcc	tcattccgct	ataaggggaa	gattatttca	gcctatgaga	tgatcaagca	1020
ctcggtaaac	ctgttcgcgg	ctgtttcggg	ggttgtgcct	tctgtaccat	ttcggccctc	1080
aagggaaatt	tatagcctca	cgcagcgaag	ggtccgtact	ccgcgaatga	aagagatcac	1140
tgaaatggag	gatttcaagg	ggtacctgag	cgatgtggag	gcccttcggc	caatatgtac	1200
aaaatgcagg	gctacgacct	ctcgactgca	aacgctgcaa	aaagccgagt	tgcatctatc	1260
cgaatgtgtg	ccccatctga	atgccgatca	tcgtcctctg	ctggatttat	tgagaaggat	1320
cgaagaatte	ccaagatcaa	gaagagcttt	atcggcagtg	gtgtaagaat	ggtctcctcc	1380
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cgtaaaagcat	gtatcaggac	gtctgaaagt	gtctccgaac	atagctcgga	tgcgtacttc	1500
aatctgatgc	gcaagcctct	ttccggcagt	tgcgcgaatt	caccaaactc	ttccaacgta	1560
tcaacgaaca	catgggctgc	gtcagcaact	catcccttat	ttcatatcca	gccaccgggc	1620
tgtaccgaag	aggatatggc	cgaactggcg	atactgacaa	aaaagccgac	ttcaaactgg	1680
aacagataca	ggactttact	cctacaccta	tgacctagcg	acggaaatgt	actacaccgg	1740
ctaccatcct	tatacgcttc	agccgtatat	acagccatca	agaaagaaga	aaagatgcgc	1800
cagcacatgt	tttcttcttg	tacaaacggg	aagaagccga	caagatccgt	cgcgagctac	1860
acgaatcgga	cgaccggatc	tcattgcca	gctgttcgat	cgcactactt	ctctcgcaac	1920
gatcgccata	ctcctccgtc	cacgcaacct	cgcaaaagca	aagcaaaagc	cgccattctt	1980
agcgacaagg	attacactta	aagtgcgaaa	tcttgacgaa	aggcgaaggc	cttttgagtg	2040
gaaaaaggtg	gagacgagcg	aaagcaatcc	tcaaatctcc	aatcagagaa	aagcagcttt	2100
tctcgggtca	caacatgaga	aagaggccgc	gccactgttt	ggcgccgcct	ctttgctgga	2160
ttggtaatcg	atcgaagcgc	agagactatg	cttcgtcttt	ggtctctctt	cgtattcttt	2220
cagcagacgc	tcctgtacat	cggcaggaac	caatcatagg	aagcaaaactt	catcgtgaag	2280
gatgcacgtc	cacctgtaat	agactgagcg	aagtggaaata	gttggaaagc	tctttcagag	2340
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catagacagg	ctccagaatc	ttcggggccg	cttctttgaa	gccgtgctga	aagcattccg	2520
accggccagc	atgaacgata	cttcatttgt	tccacagggt	gcattcttacc	atcgtaaacc	2580
actacgcgca	catcgcgcca	tacgaaccgg	tcagcggacc	ctgctccatg	cgcgacatga	2640
tgccttcagt	atggcaggca	tgaaacgcat	atcgatggca	ccaccacta	cgctataacg	2700
aagacgagct	taccgcccc	ttccaattcc	actacctgcg	tgtccgcgga	gtgatacgaa	2760
actcctggcc	gccgaatttg	aacgattcgg	gcattggttg	tcgtcactgt	acggctccac	2820
gatacaggtg	acctctccga	acggccggca	ccaccgact	gttttttgtg	acgatagtcc	2880
gcacgagcag	ctttgtaatg	gtctcacgat	aagggatagc	aggctctata	tattctatct	2940
gatcttttcg	ttatgttcca	atcgccattt	aagcgtacgc	aggggaattc		2990

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 657 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...657

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

gggcaaaaac	tcctcgaaca	actgatcttc	acctttggga	gtagggccga	aataatcaaa	60
ggagttcggg	cgatcatgat	caatacggaa	tccacctctc	gactatggcg	tagttgtgct	120
tacgctgcac	caagtcctta	ggactcgggc	catattgtcg	cgcaagtagt	cgaagccgaa	180
ttcgttattg	gtgccaatgt	aatatctgca	ttataggcct	tgcggcgggc	atccgaattg	240
ggctgtgctt	atctatgcaa	tccacggtta	aacctatgaa	catatacagt	ggcccatcca	300
ttccgagtc	cgtttagaaa	ggtagtcatt	gaccgtcact	acagcacgcc	gttaccagtc	360
agagcattga	ggaatacggg	tagggtagct	acaatgtctt	tccttcaccg	gtagccattt	420
cggcaatttt	tcctttgtgt	agactgtacc	accgatgagc	tgaacatcat	agtgaatcat	480
gtcccacaag	tttcattgcc	tcctgccacc	cagtggtttt	ggtagacggc	ggtatctcct	540
cgatcgagac	gaaatcatgg	ttgattgcga	gatcacgatc	aagatcaggg	ctttgactcg	600
aatagttcgt	ttgggcgaat	ctgcgacagt	atctttgtaa	tagcaaaagct	tcggggag	657

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1089 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

ggacactaat	ggtgaaaata	gcgaattgtc	ggtttgctgt	tgttataaaa	acaatatctt	60
tgttcccata	gtagtggtcc	ctgctcgtct	cgaacaagtg	agtggggtgt	aagagggaat	120
cgggtgagaa	tcccagagcag	tcccgcctctg	taagctttta	ccgccgtgtc	ggttttgaca	180
tgccgactct	tgctgcctcc	aaatgatgcc	actgttcatt	ctccactatt	agagggtggag	240
ctgaagggaa	ggcgcgacaa	acagaaaaga	gatgaagtaa	gccagaatac	ctgctctacg	300
agttgcctat	aaagtatgga	gagaagacct	cgaggaaaag	agttcccccg	cactaagaga	360
atagatctca	ggaagtatct	ttttacaata	actattacaa	tggaagaggt	aatccttcgc	420
atcgtaaagc	gtgatggcca	ttgcagtcgt	tcgatccgga	aaaaatccgt	caggcgataa	480
tcaaggctta	cgcgcaggag	gtgtgcacga	agaagctgca	cgtatcgaca	atattgtccg	540
tctgtaaccg	atcttgctcg	tcagagcggt	gagcttgcca	ccgtggaaaa	atacaggatc	600
gtgtcgagga	ggaactgatg	cgtttgaaatc	ctttcatgcc	aaaaaatata	ttatctatcg	660
agagtggcgc	accgtagagc	gtgacagcgt	acatccatga	agcatacgat	ggacggcatc	720
gtaacgatag	agaagacgat	gtgaatctgg	gtaatgccaa	catgagttcg	catactcctg	780
caggcaaatg	atgacttttg	cttcggaagt	aaccaaggac	tatgccagca	aattctgctt	840
tcgctacgct	atagcagagc	acacagggca	ggagatatatac	atttcatgat	ttggactatt	900
atccgaccaa	aacgactaca	tgtgtccagt	agatatagca	gacctctacg	aacggggggtt	960
ccgtacccaa	aacggcagca	ccgtacaccg	cagaatatcc	atagctatgc	aacgctggct	1020
accatcatat	ccagaccaat	cagaacgaac	agcatggcgg	acangctatc	ccggccttat	1080
ttcttcgatg						1089

(2) INFORMATION FOR SEQ ID NO:1039

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

tgccgatttct	tgtatctgcc	cgggtggttat	ccggagtttt	acctgccgga	ttgagtgccca	60
acgaatccat	gaagcggctg	gtacgggact	atatcgagcg	ggagggttatg	ctctggccga	120
gtgtggagggt	atgatgtacc	tttgcaacg	atacggggca	tggacggacg	ggactatccc	180
atgtgtggcg	tattgctgag	acggctacga	tggaaaggaat	gcgcctgcac	ctcggctaca	240
ggcgatggta	tacaagggga	aagagctacg	aggacatgaa	ttccactact	cttcactatc	300
ggctctacgc	cgctcgtggc	acagcaatcc	aatgtggag	ggagagcgtg	gagactccgc	360
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tctgtggatg	tggttcgact	gtggaagcga	aacgatgtaa	tctatgatatac	atacgaagac	480
aggagacaaa	gaaccaccgg	catattcgtg	ggggagcgtg	tgccgaaaga	tgatgtacgg	540
tggaaagccta	cggcacgatg	gatgagctga	atgctgccat	cggcatgacc	ggacattcct	600
gccggaggag	gatgagcgtc	agaccgtgct	gtacgatttc	agatgcggat	gatggcagcg	660
atgagtatag	tggccactcc	tgccggaagc	gtgagcagaa	tcccaatcat	ttccccgaag	720
aagcagcagc	caactcgagg	cttttatcga	caggcttttg	gccgaaacaa	ccgacaacgg	780
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cacgccgagt	ggaaaagaag	ttgtggacac	tgcaccgatc	cgtgaagttc	cggatgcaat	900
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cagcagggtt	ggagcgagga	aagtggcata	gattccgcta	taagagaaaag	aagaaatgac	1020
ggaaggcgga	agctacggcc	gattatgttt	gtcggcacag	gcagcgatgt	aggcaagata	1080
ttatcgctac	gggtttctgt	cgcatttttc	ggcaggacgg	ttatcatcgg	ccccgttcaa	1140
agcgcagaat	atggctttga	attcgctcgt	cacgccgaag	gtttggagat	cggacgagcg	1200
cagctgtgca	ggccgaagct	gccggatccc	atgtcatatc	gatatgaatc	ccgtgctgct	1260

caagccgagt	tccgtcatatc	ttcacagggtc	gtgctcaatg	gccgtccgat	aggcaatcgg	1320
gatcttacga	atacttttcca	cgagagggga	gggacgaact	gcgtacggag	gttacgccgc	1380
tttcgaccgc	ttggcttctc	gtttcgcccc	cgttgtaatg	gaggagcggg	cagtatatcc	1440
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ccttggccga	tctctatgaa	ttgcggcgca	atgggtgcggc	caagctatcg	tacaggcaca	1980
tcgcgacggg	acaacggtat	tggggatatt	ggcggattcc	aactcatggg	catggaggtt	2040
tgcgatcccc	accatataag	ggcgatatag	aacgcctgcc	cggtctcggt	ctgctgcctg	2100
taacgacgtg	atgacaggcg	agaaggttac	acgtcgacag	gcatttccgt	ttctggtcat	2160
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catcttctcc	actgaatcga	ctctcggatg	gaacgaggat	ggatatttcc	tggatgctac	2280
ttgtatgggt	acttatgtgc	atgtatcctg	gacaatcccg	ccgtaataga	ctatctgctt	2340
tcaccgtatg	caacaaaatg	gaagagcgga	aaagcttcga	ctatgtccgc	tataaggatg	2400
acaatacgat	aaattggccg	accatctgag	acgatatgcc	gatgtcccgc	gatttaccac	2460
ctgatgaaag	acgatgatta	aaggacacgg	agatgacctt	accgtcacgg	ccccattcgg	2520
gcaaatttca	gttcgaatgt	ttataacgca	ccgagcgcca	gggattgctg	gatcaccttc	2580
acaggagatt	ggatagctcg	gttcctatcc	ggagccggag	ccttattctt	tggagaaagg	2640
tttggcgatt	atcacggtat	agctgcgatg	tcaatcagtg	tgaccagcgg	tgccacgaag	2700
ctatttatct	catagcgcat	gctttccgtg	gatcttcttc	agcctagtag	ttcccacttt	2760
cagcgaatat	gccgatgctt	gccggctgca	tggcatcggt	tggattttat	ttccaagccc	2820
gaagaggctt	cttctcgata	tgtatggtct	ggctctgtaa	tccgaacaat	ccgacgggac	2880
gtgtttggaa	gcaagcgc					2897

(2) INFORMATION FOR SEQ ID NO:1040

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 693 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

ctgcggatct	gtcgttgccg	aaagtcggtc	gatgcacatc	cgacttgctc	cggtgtagca	60
agcactcctc	aagacgttgg	atgaaatgga	aaagaccgta	tcgagcaagc	cttggcacga	120
aacggcagca	acctttcgaa	tgtggcaggg	aattaggcat	cagccgccag	actctgtata	180
ataagatgaa	acgctagggc	tgtagccctt	cttctatggg	aagacggaag	accggcagtt	240
tcggctgcat	ctgttattta	ccatcgatc	ggcggtggtg	ggtacttggg	cggcgctgca	300
ggacattatg	ccatcactgt	ttttgcagcc	ggactcgcta	tctttccgcc	ttgcggttgc	360
gtttacttta	tcggcgccat	cttcaagatc	ttccctgctc	ttgaatgcta	tcgagaatgg	420
cgattattcc	gtgcgctttt	cgaaatggga	ggcaatgtct	cgcatcgaac	attcaaccgc	480
acgcttaatc	tatcaaggag	atcctcagcc	gttctcgtga	tgaggctata	gccggcgaga	540
gtttctcgta	catgtattgg	aacagattcc	tgtcggcatc	atgatggtgc	tccggaagga	600
tatgtctatt	ctaccaatac	agtgtgtgtg	cgctcccggg	gttaccggtt	atcacacacc	660
ttcgatcagc	taaactgtgt	tcgccgacat	gcc			693

(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 965 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...965

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

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acttcgaaat tgttatcggg tgaaggcaaa tggcgactcg aactgccctg caggctattg      60
ccacgcacatc cggcggggaa tacaactggg cgcagcagat accgtgcata catgggtcaa      120
tgagagctgtc ggacttaagc ttctgtacgc cctcgtaccg acaaaccat gcagatttgg      180
ggatctgctt atggtgggca gccttgctcaa gcggaggata ctcccttac gaaagagggg      240
ggggcggttat cttctctcgc gaatggactt ggagcacttc gcttttcgta ccgatattgg      300
tacggcaggc attacgtttc tccctttgct gcacctttcg ccattccctg acgtatgaca      360
aacagcctct tacgaacggt tggggcgatt atttcgtctc tatgccgact attcgtggcg      420
gatggcacga agtgtttcgt tgcggctgtt gtcgggtat ggttccagcc ttcggatcgt      480
tttgcgatga ccacgccttg gaactgacga tgcgtatcga tcccaaattc ccaatagctt      540
tctgaaaggc aatcattgat cttttcgata tttgcgagt gattcctcgt gatcatttag      600
tccggttaagg ttgggtgaat gccaaaagaa agaggacgcc aaagagctcc aagctccttt      660
gacagtcctt ttcgtttata ttggaaggat gtcgcttaca gctatgcgat gtccatttcc      720
ttcatgatct ctgccgtgat tccttggcat ctccgagttt gaggaataca cccgttgctc      780
gtgttagagc ggattgtcca cacctgcata accgggtttc aggtcgaagt tgcaatgatt      840
acttcggagc atcgtccacg ttcagcacgg gcataccgta taaggcgtag cctcagcatt      900
gcgagcacga gggttcatta cgtcgttggc acgattacta ccacggcatc cgtctgagcg      960
aaatc

```

(2) INFORMATION FOR SEQ ID NO:1042

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 592 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042

```

ggcttctgct gtctgagcac ccattctttt gggagtgggtg aagtagcgac ttccaatttt      60
gccatttcag catcgtttgt aggcttgatg tccgtagcta tttgaagtcg gtacgctctg      120
ccataaactt gcagataccc tcttcgtgat tacttcttga cgagccgat tgatcaggca      180
ggcaccctta ggcattttgga gaggagtctg gcattgattg attttacagt ctcaggggtc      240

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ttcggatgtg	aagcgaaact	atatacgagg	tttcgaacag	agcatcgaga	gaagaacggc	300
ctttactcct	tctttctcga	tatccgctgc	agaaacaaat	tggcgtaagc	ataaatttcc	360
atgccgaagc	cttttgat	acgtgccacg	ttcggcgcta	cattgccgta	tgcgaggata	420
ccgagcttct	tgcccataag	tcagaaccgg	atgctccggt	gaagagattg	cgatacatga	480
atacgagcat	cccattacca	attcgggcaa	cggcattcga	gttttgcccc	ggcgatttct	540
cacgcacaca	ttgtgggctg	tagcagcagc	caantctacg	tggtcatacc	cg	592

(2) INFORMATION FOR SEQ ID NO:1043

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043

ggtaaattgg	aatttcattc	acaatattac	acaatctgct	ttaaagaaaa	agagaagaga	60
ccgcgccaac	atTTTTtata	tgtttccttg	ccaagaaaga	gagaactcta	cattcgaaat	120
ctctttgaag	acatcctggt	ctgaatttta	ggaatccgaa	ggccgtgtat	tattttttcac	180
tatatttgca	atacagaagc	tgattaggaa	ggcgaattcg	ggcgattttt	agcctgtaac	240
cggttctgat	cagttttttc	tttatttggc	atgtggtggt	gagtcgggat	acttttgtca	300
cttccatagc	gttccggcaa	gcccttacca	ctctcctccc	tcttctaatt	tccactaaaa	360
aacttgcacc	aaaaaaagttt	tcaacaacga	agcgagtttg	gaatgattcc	aaataagcat	420
ccaaaaggga	gaggcatcca	agtaaaaaag	gatagaaaac	tgtcttccca	acttcgaaat	480
tcgttttcag	agagtcgaat	aacgatttgt	atataaatga	ctttcaattt	atatataaag	540
gttttcgttt	tatatataaa	tcgttttcaa	taaatatata	gatcgtaatg	attcgtatat	600
aaatcgcang	ctcgaaaagg	ccttttccga	agcc			634

(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

gaatccanca	tctccctctg	gtcgagacag	tagtagaagg	cggctactctg	taatcaaaat	60
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gaagccatcg	ctatctatct	ctatcaataa	aggtgtccga	tcaggataac	tactccccaa	120
ctgtcagaag	cagagctaca	cggaagcgtg	atattacatt	tgccggaaaa	ttcgtctgc	180
gatctcttag	gatcgactct	ccggaagcgg	tgacatcact	tttgccaatg	ccacgatagc	240
caatgtctga	acgtcagcct	tagaggtagt	ggcgacatac	ggggcaatat	ccttcgpgca	300
ggaatgcaac	tctctcgctg	gccggttcgg	gcgacataga	ccttcgctcg	gtcatcctca	360
gagagtggaa	gccggtatca	gcggaagcgg	agtataaaga	taaagggaca	aacagccttt	420
gccgcgctga	aatgcagcgg	agcggagacc	tcgaatgccg	taacctgtcg	gcccacaag	480
ccgacgtaag	atcagtggca	gcggagatgg	caagctggct	gttaccgaaa	agctggatac	540
aacctatccg	gatcagccgg	ctttgtctgc	tatggcaaac	ctgtcatcgt	acacacaaag	600
tcagccgttc	ttcctctttc	cgaatggttc	cttaaatcaa	cgacagcata	gattagaact	660
tttcatagac	gcgagtagca	ataggggaga	cattccatca	gagagaatgt	actcgccctt	720
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cccccgatca	atcgtggatc	ctttcccccg	actcaatttg	tttgtatttc	atccggcata	840
aaaatggaat	ttttaattgc	atttataggt	aggggtgtgca	aagcgcaatg	gtagttttta	900
tgtttgaggag	aaagtcggaa	aatagttact	ttgtttttat	gcataacgat	tgcttttgcc	960
catttgatgg	gcgaaaacaa	tatgatcaca	gtaaagacaa	tgaacgaatt	caaaaaatac	1020
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ctatctgaat	tcaccggcgg	atctgtttat	gccggttatg	gcataacga	tacgatgcag	1320
tattaggggtg	cgatgtggcc	actatctgta	cgggcatggc	tgctctctatg	gctcagtgtc	1380
gctcgtagca	ggaacgaaag	gcaaacgctt	tgcttttgctt	cttcccgcgt	gatgatacat	1440
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tgccgctcaa	gaaagagctt	acacgattat	ctcttctcac	agtggaaagc	ccgtcgagca	1560
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tgatagataa	aatcctcgaa	aagaatcgaa	agtagccctc	tcgttaccaa	agggggactg	1680
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acgcaggtaa	acctgatgct	cgaagagtc	atgtcatat	ctgcgatgaa	tgtgctctcc	1800
gtgcaggaga	ggtgttcgag	aagcattgca	aaaattcaaa	tcggaagaga	cgaacaatct	1860
gagagagagg	acttgccctg	gcctatagag	atcaaggaa	ttctcgattc	gatgttatcg	1920
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ccagcaagag	gacagcgtg	gcgtagagac	gagaâaagca	atattattat	ggtcgggtccc	2040
acgggaaccg	gcaagacatc	ttggctcgta	cgatagccaa	aatgtcccat	gttcctttcg	2100
ccgtagtgc	gctacggatc	tgaccgaagc	cggtatgtg	ggggaagaca	ttgagatatt	2160
ctcaccagac	ttttgcaggc	gcgagactac	gatgtcaaac	aggccagaga	gggattgtct	2220
ttatcgatga	gatagacaag	atagcccgta	agaggataat	ccttcgatta	cgctgatgt	2280
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actcgtgttg	tgggttatat	tgccggattg	caaaacagga	tatcgatcgt	gagaatatgc	2520
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ttctttttaca	tccgatatgc	ttgatttcgt	cgttgataaa	gctacgaatt	caaactgggt	2760
gcacgcggac	tacgctccat	cgtagagacg	atctgatgga	tgcatgttcc	acgatgccat	2820
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cgatttgcta	cagatcaata	atagaagtac	ccccaaagaga	atctaaccct	aaggagtgtc	2940
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attacagcag	tattttggat	ttgaccgatt	caaaggcatc	aggaggctat	cataagaaat	3060
gtattagccg	aacgaaacac	ttttgtgtga	tgccctacggg	aggtgggaaa	tccctatgct	3120
accaattgcc	ggccatctca	tgaccggcac	gaccatcgta	gtctctctcc	ttatcgctct	3180
gatgagaatc	aggtggatgc	catgcgtagc	ttcagtggca	aggatggggg	cgctacttta	3240
tgaattcttc	tttgaataag	acacagctcg	aacgtgttaa	gaagatgtac	gcgatggact	3300
taccaaactg	ttgtacgtcg	ctcccgaatc	atgacaaaag	aagaaaacat	tgcttttctg	3360
cgtgaaatag	atatttcggt	tacgctatag	acgaagccca	tgcatatcg	gaatgggggc	3420
atgacttcag	cccgaataca	gacggattcg	tcctatcatc	aatgagatag	ggccccgatg	3480
atcatcgctt	tgacagccac	ggctaccccc	aaagtgcagc	atgatattaa	agaatcttg	3540
ggatgatgga	tgccgatgta	ttcaaatcgt	ctttcaacgt	cccaatcttt	tttatcatat	3600
acgtcctaaa	acacaggacg	tagatctgac	gtagtcaaat	acatcctatc	ccagccggga	3660
aagagcggta	ttgtcattgc	atgagtcgaa	ataaagttaac	tacttttgcc	caggttttgc	3720
aggcaatggg	atcaaagccc	ttccctatca	tgccgggactt	gacgc		3765

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 772 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

gtgtgacttc	cgacagaaca	gttgtgagca	atctgtacaa	ggttgtctac	tttactccgc	60
gatgtatgat	cgttgaatcc	ataacagccc	tgctgataaa	gtgttgccac	cgatttccgac	120
atcatcttca	atgataacgt	tccccagtgc	ggaatcttgc	tgtagccttc	ggcattccgga	180
gcaaaaaccga	atccatcgct	ccgataacgg	ctcccgaatg	aatcacgcaa	cgcgaaccga	240
tggaaagcca	tcatagaccg	tcacatgggg	gtagaggatc	gtcccccttc	caacgacaca	300
ccgctaccta	cataaacatg	cggatacaag	ctacagcctg	taccagcgat	gccccttccg	360
acacgtaggc	aaaagctcct	acatagcaat	caccggcagt	atcaccgatg	gatgaacgaa	420
agccgtggaa	tcgactccct	tctttggggc	ttcatgctgt	ccaccaactg	cattagttgc	480
gccaatgctg	ataggcattg	ggaactcgta	tcagggtcgt	cttcaccgat	tcgcgcggtc	540
gaagtcctga	ttgacgagta	ctgcatcgga	ttgtgtttgg	tacaaatatg	ttcgtactta	600
gcattggcta	aaaacgagag	acagccacta	cgaccttctc	tatcttggca	aaagtcgtgc	660
agtcgcacct	tgggattgcc	ctccacgaac	cgtggaggta	gtcaagctat	ctggtgggct	720
gtaaattcca	tgtgacgggt	taattagggg	acaatggatc	ttaaaacatt	tt	772

(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3447 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

ggcaattggc	ataatttttt	ttgcagacaa	atccgcctct	ccaaagtctc	agaccggaaa	60
tgctctgatt	gcgagcgctg	ttttcgggaa	aagcggcgga	gaattttttc	cctgcggcgc	120
gagaattttt	cacttcccga	acaaaaagaa	aaagtctccg	cgccacgttt	ttcagagcgt	180
ggaaatagaa	aattatgcgc	gtaaaaccgt	ccttctctct	taatacgata	gcgcacgaaa	240
tgatggctct	cacgcgaaat	gaactttggg	gagcttgatt	ccgagacaaa	taccctcatc	300
ccctgccaa	ctccatagat	gcaaaaaccg	aaagtgtgta	acttggttaag	taatcacggc	360
cgacaccggg	gtctgcgcgc	ggtactaagg	aacattccaa	tgcaattcaa	ttatgatgtc	420
atcgtgggtg	gtgcggggcca	tcgggtctgc	aagcggctgc	ggctgcggcc	aagctcgggt	480
cgcaggattt	ctcatcacgc	cggacatgaa	caaaatagcc	caaataagct	gcaatccggg	540
gtcggaggaa	tagctaaggg	ccagatagtc	agggagatag	acgccttagg	ggacgaatgg	600
gtatcgtcac	ggatgctacg	gccatccagt	ttcgtatctc	aatcggagca	aaggccctgc	660

catgtggagt	ccgcgcgctc	agagcgcgcg	atgcgcttca	tggaagcgtg	gcgcgatata	720
gtggagcacg	agcctatctg	tacatgtggc	aggacagtgt	acgctgcctc	tctattcgtc	780
aggggcccgtc	gcgggagtcg	tgacggctct	cggggtagag	tttcaggctc	gtacgtgggtg	840
ctgactacag	gcactttcct	cggaggtgtc	atgcacttcg	ggagcgtatg	atcgaaggag	900
gacgaatagc	cgaaccggct	ttccacggca	tacggagcag	cttcgtgatc	tgggcttcag	960
aaccgacaga	atgaagacgg	gactccggca	cgaatcgacg	gccggagcat	cgatttcagt	1020
ctgaccacaa	gcagtcggga	gaagaggatc	accaccgttt	ctcctatatg	gatacgcccg	1080
aagggtgcta	cgccaaagga	gttgctacgc	actctacacc	aatcccgggtg	tcatgagata	1140
ctaagcaaa	ggttgatcg	ctccccctg	tacaacgaca	gatccaaagc	atcgccctc	1200
gatactgccc	cagcatagag	accaaactcg	caccttcgcc	gacaaggaga	tgcaccaact	1260
gtttctcgaa	ccggaggaga	gaccagtaac	gagttttacc	tcaatggctt	ctcctcgtct	1320
ttgccttgga	gattcagctc	gaagccctga	aagccattcc	ggctcttcgc	cagtgcacat	1380
ctatcgctcg	gggtatgcca	tcgaatacga	cttcttcgat	ccacacaatt	aagacatacg	1440
cttgaaacca	agccggtgaa	agggctgttc	tcgcgcgtca	gatcaatggc	acgaccggct	1500
atgaggaggc	cgccggacag	gactgatagc	cggcatacaat	gctcacctgc	attggccatg	1560
gcgcaggcag	ttcacactcg	gacgggatga	ggcttacata	ggggtactga	tcgatgattg	1620
gtgagcaaa	gcgtggacga	gccctaccgc	attgtttaca	tcccgaccga	atatcgcatc	1680
ttgctacgtc	aggacgatgc	cgacatgagg	ctcaccggaa	ggcggaaagcg	atcgggctgg	1740
cagacagcag	acgcaggaga	ttgcccggaga	aaagcaagta	tttcgcgata	agctgatcga	1800
ctttacgcac	aagtttccct	caaacccgat	ctgatcaaac	cgcatctgga	gtcggccggc	1860
cacttcctct	caagcaagga	atcaaaactgt	acgacctgct	gctccgtcct	caataggaat	1920
gaatgaagtc	tggtcgatgg	tgccctctct	ccaaagaatc	tggaagagat	cccggcatcc	1980
agacgagagg	aaatcgtgga	agctgcagaa	tcttgatcaa	atacgacggc	tatatcaaaa	2040
gagaaagagc	cttgcccgca	agatcaacag	actcgaaagt	atccgacttc	cgcagcatgt	2100
agattattgc	agatgcagtc	cctctccacc	gaagcacgcc	aaaaactgac	gagcatcggc	2160
cggaaaccat	cgcgcaagca	tctcgaatac	cgggagtctc	tcccccgacg	taagcatcct	2220
tctcgtactc	tgcggaagat	aacgtttcac	gtgaacaaaa	tatcgaaccg	aatgatgacc	2280
cccgaacga	tgaacatcat	cctcccaccc	tgcgcgaaaa	accgggttgc	taccagtact	2340
tcgatgaaga	tggaaggtaa	tctatgtagg	caaggccaaa	aaccttcggc	gcagggtcag	2400
tcgtattttt	acaaggagca	cgcagacagg	aaaacccgca	tactggtcag	cagatcagga	2460
gcatacaata	catagttgtg	gacagcgaag	gggatgcccg	ctgctcgaaa	actcactgat	2520
caaagagtat	caacctcggt	ataatgtctc	ctcaagatg	ggaagacata	ccccagcata	2580
gtgatcaaac	gggaaccttc	ccacgtatat	tcgcacacag	ggacatcaaa	aaggacggat	2640
ccgaatcttc	ggccccctatc	cgggcgcact	cattgccaaa	gggatgctcc	gcctttgaaa	2700
gagatctatc	cgatccgtac	ctgcaaaactg	gatctgagag	aggaaaaatc	cgacaaggac	2760
ggtaccgcgt	ctgcctgcag	tatcacatca	agaatgcaaa	ggccccctgca	tcggcaatca	2820
aacttcgaac	gagtacgaaa	gcatgtatcg	gaaatacgcg	atctgctccg	aggcaacttg	2880
cacaggcttg	tcgcatgtat	cgcgacagga	tgcaggatata	cagcgaagga	ctgcgcttcg	2940
agaggcacag	atatgcaagg	agagaataga	gcttcttgag	cgatacgaac	caagcacacg	3000
gtcgtaccgc	gtaatataga	caacgtagat	gtttctctta	cgacgaagac	gagcacacgg	3060
cctatatcaa	ctacatgcac	atagagccgg	agggatcaat	cgtgtgtaca	cettggagta	3120
cagaaagcag	atagagaatc	gaaagaagaa	cttcttgtag	cggcgataac	agagctgaga	3180
caaagttcga	aagcaacgct	cacgaaatcg	ttttgccgtt	cgacaccggg	tggcaacggg	3240
agagagcatc	acgactacga	tcccccgacg	tggagacaaa	cggaactgct	ggaattatcc	3300
gagaagaacg	tagctcaata	caagctcgac	aactcaaacg	tgcggagaag	ctcaatcccg	3360
agcaacgcgc	cctacatatc	gccacgggat	ccaaaaggat	ttgcacttgg	atcgtccgcc	3420
gaaacatatc	aatgcttcga	caactcg				3447

(2) INFORMATION FOR SEQ ID NO:1047

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 481 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...481

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

gagaggggaaa	agtgctcaga	acaagtaaaa	aatgaccgt	catagctatc	atgaatgaag	60
aacggcaacc	tgtgttctct	ttcgtttttt	gatgagtaaa	ggtaaaagca	aatctttcg	120
atatgggtca	ttttcgaagc	tgaaaaaacg	gaatattcac	cgaaaaatat	gcgcaaaaaa	180
agttttcaac	aacgaaaagt	gtttggaatg	attccaaata	agcacttctg	agagatcgaa	240
attcgggtaa	agtacgtaac	atgacagcct	ttttcagatc	gaaaagctct	ttttttagtt	300
cgatgaacaa	tctatatatt	aatcattttt	gatttatata	taatcgtttt	cattttgtat	360
ataaatgatt	ttcaataaat	atatagatcg	aatgatttg	tatataaatc	acaacttcct	420
aaaggctttt	tcttgaggga	taacagaggc	accatcggt	tttctcttga	atcgacgggtg	480
c						481

(2) INFORMATION FOR SEQ ID NO:1048

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048

ggcgatgagt	tcgacttctc	cgtattggca	ctttatgatg	aaaaacgcta	tcagttggga	60
ggaggcgtct	ataatgtgca	gaaggaaaag	ttcaaactaa	tgttttctat	cdgagtgata	120
gtgcaggcgt	ctaccaacca	tatatcatga	aggcaagatt	aagggacagt	tgcttctgcg	180
cgtgttgggc	atggacgact	ggatgccaaa	caagagcctt	accctgatgg	tacgtacgac	240
tttgtgatgg	ctatacgatc	ctccctcaga	aaggagtgtg	gacccctcct	accgggagcc	300
gttcggaaaag	acccttgccg	atgcgtttgg	cgatcctgta	ttgcgaaaaa	gtactgcttc	360
caagagctat	acgatacaac	ggcagtggct	gccagcaagt	ggcagagaag	aacaaattta	420
tcttccgagg	cgaatacaaa	gttctccggg	cggagacatt	tctttgggag	ctatcaacgt	480
aacacccgga	ccgtcgtagt	gacggccggc	ggtgtcaagc	tgacggagaa	tgtcgattaa	540
cggtagacta	cctctccggc	aacgtatcga	tcatcaatga	agcgattcct	cttcgggaac	600
tcccatcaat	gtgtcgctcg	agaaccgagg	gctgatgata	tgacgcgcaa	aacgatgttc	660
ggtatagatc	tgaactacaa	cttttcaaag	acttcaccct	cggcgggnacc	ttcatgcacc	720
tgagcgaaat	gccgcgacga	c				741

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
 (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

tcacatctctt	ccaaatcatc	gtcaacctgc	gcgacagcct	tcgcaatatt	ccaaagagag	60
ctttcttgtc	cttacctcat	tgggagccac	tcatgctcac	tgatgcgtca	tctggctcta	120
ccggccatta	ctcccgaagc	actctccac	tacgagtggc	cattgggaca	gccatatcag	180
tactcttctg	gacagaacat	acgggacgaa	taaagggcat	gggattcttc	attgtcgtg	240
catggtgcgt	atcagctata	cggagatgta	cgtgggcatc	gtggttttag	ggatgcaggt	300
ttttctcttt	ttttgctcgt	ggatggtctt	gagaccgcac	tatcagatgg	aggaacagtt	360
agccatacaa	tcaaagaaat	catcattcaa	caaacaataa	cgatcaagaa	atgaaagtaa	420
aacatctatt	agctgcaccc	tgatgatgct	aggaacaggg	aatatttgcg	cccaaaagtc	480
cgcaaacagt	ttttcaatgc	aatcaaagaa	cgggttagcc	tcagtgggta	tgcgcaagcg	540
ggttttcttc	ttgtggcttc	cctacggcga	gttccgaaaa	nggagaacac	acacattcga	600
tgtaaagcgt	atcaaccttc	gtgccatgtc	gcatcacga			639

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1418 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
 (B) LOCATION 1...1418

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

ttgagtgcctn	cggtaccgat	agacgaattg	aactcattta	tcggcctttgt	gatgagttag	60
gacttgccgg	aagaggatcg	ggattttntg	cgtaccatca	gcacaaagct	tttcaccgtc	120
ggatccctat	ctggccacaa	atcaggaagc	agagagctga	tggtggagag	tcgagtgcac	180
cccgaaacga	tagaactgtg	gagcaggaaa	tagatcgttt	ggacaatgcc	attcccaaga	240
tgacgctttc	atcttgccgg	ggggtagccg	ttctgcctct	ttggcgcatg	tttgcgtagc	300
gtatgccggc	gagccgaacg	tcatatatac	cgcttgagtg	aagggcgctg	gtagaggagc	360
ctgtgatgcg	ctatatcaat	cgtctgagcg	atatttcttt	gctctggctc	gaaaagaagt	420
ttggcgtagc	accggagggtg	aattattttg	gataagacct	gcgattgaga	aaaggctgta	480
gaatcaattc	ggggcttaat	aaagaaggag	cgagaaaagg	cttcggatat	taggttttagc	540
agaaaaatct	ttttttatct	ttgctgcttt	catcgaccga	ttatatcaaa	taaaaacaaa	600
tgattgcttt	ccaagccctg	caagccatct	ctccgatgat	ggccgggtatc	gcaacaaagt	660
agaagtactt	agtcgctatt	tttcagagga	tctctaattc	gctatcgtgt	aaaagtggag	720
gtggagtatt	tcacctctct	tgcaatgaat	tgcttccgct	gaaagatgtg	tgcccctccat	780
ctttgaggaa	gagttgcgcc	gtatatacca	agacttttagc	gagaaggatg	ccgacgtgta	840
aaggaaatag	aggcggtaac	gaatcatgac	gtcaaggctg	tgagtatttc	ctcaaagagc	900
ggttcgaggc	catggggata	cgagatgcca	agaatttate	catttcggtc	tgacctcgca	960
ggatgtaaac	aatacggctt	ccgatgatg	atacgcgagg	caatgaccga	ggtttacttg	1020
cccgttttaa	ggagctgggtg	gagcagcttc	atgcttatgc	ccttcagtgg	aaagatgtcc	1080
gatgctggcc	aaaacgcagt	gacagccggc	gtcggccact	cgcttagaaa	ggaaatagaa	1140
gtattcgtct	atcgcttgcg	caagcagatc	gacttggtgt	ggaagtacct	cattcagcca	1200
aattcgggtg	tgctacgggc	aatttaaatgc	gcatcatgtg	gcttatcctg	atcatgactg	1260
gagcagattt	cggcgctcgtg	ttgtaaacttc	tctcgggctt	gaacgggaag	aactcactac	1320
acaatatcca	actacgacaa	acatggcagc	cttattttga	tgctgtgctgt	cgatcaattg	1380
tgatactgat	cgacctctgc	cgtgaatttt	ctggcaag			1418

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

tccaatcgta	ttccgcttca	tcaaacgggt	tggcttgggc	gcgaattaat	tcttttcatg	60
gcatgtgggg	agatcttact	ccccataata	agcccggacg	gtcggtagtt	ttctctttcc	120
cgaaaatact	atccccatga	atcatactgg	tacatggaag	ggagcatagg	tctggagaat	180
atcttccggc	tcttgccatc	gaatacttcc	gacgcttcac	ccaattacaa	acgactccga	240
ataaagggga	gtccgtgctc	gcttccagat	cactttctga	cctctaaagg	aaagggaaat	300
gccgaaaactt	ttcgttctga	catttctctc	tcttcgaagc	gatcttaata	gaatcagagc	360
ttgatgaagc	gttcggccgg	tgtgctgcct	tggtcatgag	tttgatcaca	taggccccgg	420
cgttcaaaac	cttcacgccg	acatgcgagt	attctccata	gagagcacca	aacgacctga	480
aaaatcaaat	tccggacacc	gaagtcacct	tcatgcttaa	tattcagtag	atccttcacg	540
gattggggta	aaccccgaa	tcagaagaaa	aatag			575

(2) INFORMATION FOR SEQ ID NO:1052

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 966 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...966

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

gcatagaaaa	tgttcgtcac	ctcgctaccc	gttccgcatg	ttgtgggcaa	atgatcagtt	60
ctttctcttt	gataagaggt	attttgcggg	cgaatgcacg	agtacatcat	ttaatccttt	120
cagaacgaaa	agtttagaga	tgtcaatacc	gtacctctc	cgataccgat	tacgcggtcg	180
aactggatat	tacggagtct	gccaagatgt	tattcatcat	ttcgtcagaa	ggctcgcctt	240
gcccaatttc	tcctgcataa	caaaatggca	ggggagctgg	catgccttca	tatagggttca	300
tagatgaact	cgttggtaat	taccaagtcg	cgttctccaa	gacgaattcc	ttggcaaatt	360
ctgcaaaagt	gtcaaagtga	tgtgttacac	tctgagtttg	aaaagttgca	taatagtatt	420
attggttttt	ggaataatcc	taactttttt	tcttctcttc	ttatccgaaa	cgtttgcgga	480

gatgtttcgt	agttcctctc	tgaatccgg	gtgggctatg	gcaataagag	cttctgctcc	540
tggcgcaaac	tctttccttt	gagttgtgct	ataccgtatt	cggttacacg	taatcgactt	600
cgttgcggag	ggttggttaca	gcagctccct	ctgcaatata	ggtacaattc	gagatgcagt	660
accgtttttg	gctgttgagg	gaattgcatg	atgctttttg	cgttttttaga	ccatgctgct	720
ccacgaacat	aatctcttga	ccgccgggtc	cgctgaattg	cttgcttcct	atacattcgg	780
acacacttgt	cccataagat	cgatttcgat	acagctattg	atgctgacca	tatatcattt	840
tgagcgatta	ctcgcggatc	attgacgtaa	tctaccggat	aagttctaca	tcgggatttt	900
tgtcgatgaa	atgatatacg	tcttcgcttc	cttaagaag	ttgcgaccat	ctttccgggg	960
tgaaga						966

(2) INFORMATION FOR SEQ ID NO:1053

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

gggcttccat	ttgggcatag	tctgtatcac	gcggagggtc	tccttgtcag	tgcaggggtca	60
atacccttaa	caacagttgc	ttgtgtcaca	gaaccatctt	ttcgaccacg	aaacgaacga	120
ttaccttacc	ttggatgccc	atttcggagc	ctgctcggga	tagaccaa	ttttactaag	180
ccatttagag	agagcatata	accacccggg	aactctgccg	gactttctac	cacttcgtgg	240
atttttcctc	ttcttcctca	actttaacgg	gggcaacggg	cgcaggcggg	ggcacggttt	300
gctctcatcg	acagagacca	aagcgatttt	ctccactttc	tgggtgttatc	taaccacctta	360
aattcttccg	gcagctgtac	ctcctgttgc	tgggttgctc	cggctcgggc	tgtctccggct	420
cgggtcgtt	ttcttcgagc	agacagtttc	ctccatgtcg	gcaatatcca	ctttatcgcg	480
tgtataggcc	ctatcttata	gtaagtagca	tattccaaag	ctacatacac	gatcgcgagg	540
ctacgacaag	ccccaaaagg	aagttcaaac	cttttccctt	ctccaagtgg	ccttaggcga	600
tttcttgatt	tccatatctg	atagtattgn	ttttgattct	tgctttgggg	caaaaataca	660
aagttttttc	atncccaatt	cgttttggtg	gaaaaaatca	ggcgtatggg	gcaaaattgc	720
aggctgcaaa	aatc					734

(2) INFORMATION FOR SEQ ID NO:1054

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

agcggattgt	ccttttatag	atgtacgata	gtaaaaactt	ggaaataaacc	actcgatcta	60
gcccatacta	agaagaaaga	gcctcatagg	atcggcgagac	gatcccatga	ggccccaac	120
cggatatcgg	caacggctaa	aagcgggtacc	tatgcccacg	aagaagtcac	gattataagc	180
gtattcggtta	tttccctttc	tcttagagcg	gtcgtcgaag	aggattgcct	attgtcgttc	240
agtcgggaat	atcagaacct	ccacctgaca	caatatccac	aaatccatgt	tcatgcctat	300
ctgtatataa	taacgcttat	agtggaaatgc	ggctattatg	tttccccgat	gtcccagcgg	360
atatttggtg	ggccaccaag	cgttgggcca	aaaactctgt	gctgtagttg	ttcggcttcc	420
atccttccaa	cttctgccga	ttgtaccata	tataccgtat	gcaaggaaag	gacccgcttc	480
gatcgaaacc	ccatgtcatt	catcagggtcg	aaccgcatgc	cggcattgat	cggcagttga	540
gatatgtcaa	gcgagtgga	accatcgtaa	tataggtacc	aggaaccatt	cgggtatatac	600
ccattcgggt	ttggagccct	tcacgtgata	gttcagaccg	gagccaagta	gaatcctctt	660
gatccgatca	tgaattcggc	agcggcccga	cccgcaggcc	gacattcatt	tggtgtccca	720
cacatatccg	tctctttcat	gctctgattg	ctgcctacga	agttg		765

(2) INFORMATION FOR SEQ ID NO:1055

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

ggccgtaacc	tgtttagaag	atctttatgg	acttgatagc	catattcgaa	catcaactgt	60
ccggcgtag	caatgatagg	caaagattag	acaatgtgaa	gacaaaacgg	aacgacgaga	120
gaagaatacg	aatctcctat	ctgtyagaa	tagcgatgt	accgtgggtc	tgctttcggc	180
taatctcccc	ttggcaatgc	caagcatcca	ttgacaaaag	tgtatgcgac	actgtgactg	240
aaggtaagcc	ttcgaaagga	gaccatccgc	agaggctaag	tatattatcc	gcagtacggt	300
gtgaggagat	gacggatcca	caagcaccag	atcggcatag	tagccggacg	aatgtatcct	360
ctcttctcta	tggcgaagag	agtggccggt	attgagccgt	tttgcttact	atcttctcga	420
tgctgaatat	gccttgattg	cgagttcgag	caaggcgagc	aaggagtgtc	gcacgagtgg	480
cccgcgggat	caacctgcaa	gcaactgcct	tctttttctc	ttaagcagat	gccgggcatg	540
atccgtagct	ataatatcga	taccgttcca	ttg			573

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

tcgatacttt	tgtcagaaaa	aatttcgggc	gagatccgc	tccgtttgac	acatcggctg	60
cttgttcgta	caaagattcg	tattcggact	cctgaagtca	cggatgaggg	aaacgaactc	120
accaagacgg	cgtcgggctg	tagcactaga	tccggaagac	ccttctgcga	ttcggacagt	180
acgtcccaca	acgaacagaa	gaagccgtgg	ctatctcgtt	aagacgagac	agagtgggtat	240
ctcctttcct	cgttgggat	aattgattac	acgcctgagt	gcttcgtcat	cattggattt	300
acgattagac	gaaaataggc	caggacgtcc	ttgatctctt	ttccgaatag	aacgaaagcc	360
caccgtatat	acgaaaaggg	atattgtgtt	tggaagtgct	tctcgaataa	ctcggctctg	420
cgcattagt	cgttacagaa	tgcgaaatcg	gaataaggac	aatgctcttg	catgcgtcgc	480
tgcacgatcg	atccgctacc	gtataagcct	ccaaataccc	cgacagacaa	cccgtcaggg	540
aatacgtca	cctacttggt	tgttcgaaaa	aacttgcttg	gggattcggc	ctcattgtga	600
gcaatcaagc	tattggcagc	attgacgatg	ctctgtgact	ccgatagttc	tcctcaagtt	660
tgaaaagtgt	gctcccgggg	aacgacttga	aaagcccaga	gtgtttttcc	acttgggctc	720
cacggaaaact	gtataactct	gagcatcctc	ccccacgacg	aataccttgc	ctttctcccc	780
catcactgcc	tggcaatcaa	atactgtgca	aagttgggtat	cctgatattc	cgtgatcaat	840
aaataatcga	tgcggtcacg	gtaggtctgc	aagacatccg	gaaatcacga	aaaaggacat	900
tgttttgaaa	agcag					915

(2) INFORMATION FOR SEQ ID NO:1057

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1211 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1211

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

taggatgggc	ttttgagaaa	catttttaggg	atttatggga	aaaaaaatca	tagatgcctt	60
cacatcatat	acaagacctt	gtgttatagt	tgtagttagg	gctcttttac	tggtaaatct	120
ataatatcca	atcatctatc	aaataaaaatc	aatttttcagg	ggtgctttcc	actgatattg	180
ttcggaaattt	ttttcgatta	gcactagaga	tagaaaaact	tatcaaacat	ccacgtatag	240
aatgggtgata	gtgaattaaa	tattcaaaaa	aataatgttt	cgaatatgat	tgaaagatgc	300
tggagatttta	tcgaagcagg	agagagaaaa	ttattattga	gggatgcac	tcacagaaga	360
ttttttgaga	aatataaaca	aacaagattg	tctataatag	gattagacaa	caaaagggat	420
ataaatgac	ggctggattt	gaaatgaaga	ctaccctgta	ggaagtctct	aaaaaaacag	480
aagatgaaaa	aaacgaatta	atgaaataca	ttatgggaatt	atcgagtgtc	gtaaaagaac	540
aattttaagg	tagttgaatt	tcaagatatt	gaagatgcaa	aggataaggt	gaacatctgg	600
tagaagaatt	tttcaactcaa	aggagtaaaa	ggtagcgtat	gagtagtcga	aaaggaactg	660
tccattatatt	tgtgtaaacy	ataattgggt	tgagatttag	cactcgacta	aatctcgtat	720
ctattttcaa	atatacaata	aattgattca	tagcccaatc	ccgggtttttt	tttatcggca	780
ttgtcacttc	ttttctatct	cttgacagagc	taaccaaaca	gacttgcgaa	gagatcatct	840
gtagggagcg	acatcttttt	ttcatgtatt	tgcaattttt	ccattgagat	tttcaatcag	900
attgatcgtg	taaaaatcgt	tcatctctac	aagaaatcaa	agaaagccat	taaatcgtcc	960
taattacgat	gccaactctg	accgcatgtc	tatactttga	acccatattt	gctcgaagtg	1020
agataatgcg	ataccgcttg	ttctcgggtt	acggaagtat	atatttccct	catgtcagcg	1080

taacatcctt	catatccttc	caaaaccaca	tacttgcagg	aattgcgac	tgatgcacaa	1140
cacatatctg	gtggtggaat	ggggaaaacc	gttttatgat	gtatgtgaag	tcattgagat	1200
tatccgttat	t					1211

(2) INFORMATION FOR SEQ ID NO:1058

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2430 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2430

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

cactattctg	catgaacttc	acttgaacag	cttgtactga	tattataagt	gatcagttta	60
cttacaaaga	cacgacatag	agtgttcaga	atatatcgca	agatggtcga	cataagacct	120
cccgtctgac	tcacgagact	aaaacaagta	ctaacaaagt	tttgttctta	aactcttcaa	180
acaaactctc	tgcagctaac	tatccttccg	gataactaaa	aaagaagcga	aaggagtagt	240
atttagtact	cttaccggct	tccctatagc	aaaggaaaagc	atTTTTTtct	tacaaaatta	300
attctaacct	tattccacca	tcttctacgt	atTTTatacgc	agaaagcgaa	caaaaaccgc	360
actactcaat	aaaaaatacg	cgatattgac	cccgcgagag	atgtagtcat	gaactacact	420
caatgatact	tctcaggaaa	tccattttgc	tccaccagtt	atTCaggcaa	aatggaatta	480
ggccgatctc	gattcggatt	cctattttta	agcatttcacg	agattgtcgc	cggcaggcgg	540
gcatctctcc	atctaactcg	aatctcattt	ctatatagct	gtctgttgac	attcaatatc	600
atctgctttt	ttgctctgct	tagcaataga	aaacgtgcac	cggttcccaa	acatacgcgc	660
tgaacgagag	cagcatagcc	ttcttacttc	TTTTTctcct	ttacattgag	cTTTTtgggg	720
cgcaaaggta	ataatagaaa	ggtaattcca	atcgtctatt	aaattttaat	tcaaagggta	780
ccgatagttt	acgcgccgaa	atTTTctcgt	ttacgacgcc	tgaagggtg	gcggagattt	840
TTTTTgtttt	ggttcgggaa	gcaaaaaatt	tacgcgcgag	aagaaaaaaa	tctcgtctca	900
catttgcagg	aaacacgcac	ccgcaatcga	agattttcgg	tgcgtatttc	tgagacagca	960
ggttattgac	cgggacatcg	agcaatggcc	aaaccttatg	atTTTctatat	cgTTTtgaaa	1020
ctgtcctaca	tcacgtcttt	accatacatc	caaggcatac	catcttagag	ctgccaccgt	1080
ctatcccagc	accgctctcg	ttcgtttctt	cattatgcgt	TTTTcatTTT	cgaccatatg	1140
atttctgtg	aatatatTTT	ccacaggaaa	ttgtttctat	gtttgcaccg	gaaaaacaaa	1200
caaaaaacaga	aatcaaatat	gagatcgtaa	tgcgtagcgg	agtcgccgga	ggagctacag	1260
cagcagccag	actaggagaa	tagacgaaaa	agcagaaatc	atcttgttcg	agaaaggaca	1320
gaaatatcgt	atgccaaactg	cggcctgccg	tattatatag	gtggggtaat	caagagagag	1380
aaaatctttt	cgtgcagaca	cccgaaaaaat	tcggccgact	gtgaacttgg	atgttcgggt	1440
acagagttag	gtgctgtcca	tcgatcgctc	gacaaacaga	taagagtgcg	cgaagccaat	1500
ggtagagaat	atagttagcc	tatgacaaat	tgctgctttc	ccccggagcc	ttgccttttg	1560
tccctccatg	ccgggggtag	atagcccggg	agtattcacg	ctacgcaacg	tagaggaacg	1620
gatgccatta	aaagtatttt	ggacacccac	aaggtgaaac	gtgccacgtg	gtgggagggt	1680
gatttatcgg	cttggaatatg	gccgagaatc	tacatcccga	ggcattgctg	tcaatgtcat	1740
cgagatggct	ccacaggtaa	tggcccgggt	gatttctega	tggcaacgat	cgTTtatgcc	1800
cacctgcaag	aaaagggtatt	ggtctctatc	tggycaaaagc	ggTgaaaagt	attgaaaaac	1860
gggagaagta	ttgactgctt	cgcttgactc	gggcgaaaaa	atcgaggccg	actcatcctt	1920
ctgtctatcg	gagtgcgtcc	gaatacgaag	ctggcagctg	tgcacagttg	gctatcggac	1980
cggcacgcgg	aatccgagtg	aatgaatact	gcagacatcc	gatccggaca	tctatgccat	2040
cggagacgcc	atcgaatacc	acaccctctt	accggaaaagc	cgtggacca	tttcttgcca	2100
gggcccggca	tccgcaaggg	cgcatcgtag	cggataatat	gcatggacaa	acattgggag	2160
ttatgaagga	gccataggaa	cagctatttg	caagattttc	gatctacggg	tgcagctaca	2220
ggTTTgcgg	caaaggctct	caagcgcgaa	ggcctcccta	tgaTcagtg	acggtacagc	2280
ccaacagcca	cgcgggctat	tatccaatgc	ctaccgcgtt	aegcttaaaa	tcaccttcca	2340
cccagagagc	ggatgctcta	cggTgctcag	tgtgtaggca	tagaaggcgt	ggacaagcga	2400

aagactccat cgctcaaata atcaagcgca

2430

(2) INFORMATION FOR SEQ ID NO:1059

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

tcggagagag	acgtttttcc	ttcgaaaaga	taactgccat	ccccaaaaac	ttaaagggga	60
gtttttcttc	atcgtaactc	tccgtaatat	cgccgacgtc	tcttcccaat	atgtcctcca	120
ttgtgatcag	tccgcaagtg	ccaccgactc	atccacaacg	atggagacat	gcaccttatt	180
ggctctgaac	tcctcggaac	atcatctatg	cgcttggttt	cggggacaaa	atatgcttta	240
cgaatagagg	atgccagtcg	aattcatcgc	ctttatccat	gtgtgggatt	agattttgat	300
gtaaatcacc	cttttgatat	tgtcttctga	ccccctctga	acggaagtct	ggaataaccc	360
gacgaaacaa	cgaagtcaag	catcttacga	aaggccagct	cagatccaca	tccacaatat	420
cgatacgcg	aaccatgatt	tgcaggctgt	cttattatag	aatttgatga	tttcgttaat	480
cattttcttc	ctctcggctc	tccctccgta	gtgggtgagg	ctaccgcttt	cgagagctct	540
ccacggacat	atcgtaattc	ttcttgctga	tacctctggt	aacgatgcgg	tacttttgac	600
cagcaatttt	gaaaacgggtg	acaatatctt	atagatacgg	acatagctgc	agcagaaaag	660
cgcgagtatt	gcagcggatt	cttccggcat	acactttcgg	cagaatctct	ccgaacagca	720
aaagaacagt	ggtcagagta	tgcgtctggat	cagaaatcca	atgatcggag	aagagaaaac	780
gaattctgct	cgatggcata	attggaaaag	ataacgatgg	ctacattaat	cacttattcc	840
cgatcagaat	agtatcta	agctgattcg	aattgtctaa	taattggaaa	gcgcgatgtc	900
ggaagagtga	ttccgttcgc	ggatgttctg	cgatcgatcg	gctttagtga	aaaataagcc	960
acctcacagg	aggacataaa	gccgaacagc	aaagaagaag	caggtcgata	atgaaagcca	1020
ctatggctgt	gcaccgatag	gattgacccg	aagcccttca	aaaaaatcag	taataagggt	1080
aagtccaaaa	taaatctgat	ttgggttaga	acggaagggtc	ggacggagtt	ccgagctttc	1140
ttcttttgcc	gtatcacgga	cggatgaaga	agacgcaggg	gcgtcgtatc	ttgagtcgat	1200
gaaggtgtct	gtgaagttct	gctttgtctc	gattggagga	accgctttca	aaaaagttga	1260
ttttctcgcc	aaggtttccg	tcacttgccg	acgaacccct	gtattgtcta	catacgtgcg	1320
gtacggattt	ttccttcgac	atataggaga	ctccctttct	tgatccactt	ctggcaaaaa	1380
tggccaactc	gcgataggca	accacattat	gccattccgt	tgtctcggca	cttcagtgcc	1440
attggccagc	ttgtagcctc	gctcggaagt	gccagcgaaa	agtttgcgac	agccgaattg	1500
ctatcgaaat	accgaatctg	ggatcccttg	ccgtacggcc	tatcaagatg	attttattca	1560
gagacatggc	aatttcta	caagtgaacg	aaacaaaaat	aggaaatatg	attcgtttaag	1620
ccaaatgctg	ccctgtctgc	aacttgtgca	tatccgatgg	gacggcgaa	gcagcaagcc	1680
aatcaactgt	tcacgaagtt	tccggcgaga	ataatctgac	gcacggccaa	acgtactttc	1740
cttaccggac	gaggcatacc	aaacgacgca	ccagctcttt	ctgcgaaggt	gataattgct	1800
ctacggtcag	ttgggaataa	acgtaattcc	ctgaccgctc	tccaccaatc	gcatgaatgc	1860
ttcatgctac	cgccggaata	tgcctgtctga	cgttcatgca	acccttcac	tacaaaaacg	1920
aacgagctga	tctctgaagc	aatgaccctt	cgccaacacg	cagagacgat	gtgggttgac	1980
ctcggtagt	cgaattacat	cttggtcgat	agcggctcac	agcgcgatac	ataccccgag	2040
aactcctcat	aatagagcag	tctgttctca	gacct			2075

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

tctgtcaagc	tccttccctg	atcaactatc	tgcgaaagtc	gcataattat	ttctcgaatt	60
tcgtctgccc	tttgctccgg	tcaaagacct	tttggccgac	tgtccaactg	tccatccgaa	120
gtgggtattcg	tcattcgtca	attctatatg	agtatgtgga	ggaagtacgc	aagcacatga	180
gctacgaaga	gaaaacgttt	tcccttatgt	ggaaaaactt	ttgggaggaa	agttggacaa	240
acgttgcaact	acagaatcga	tatattcagc	aaacgccacg	atcagataga	gctgagattt	300
ccgaacttaa	gaacctgctg	atcaaatact	acccgacatc	gagggctacg	aactcaacag	360
cgttctgcac	gacatattct	cctcggaaga	cgtttgtcag	cacacaactt	tgtcgaagac	420
catcttttcg	tgcctttgat	tgtaaaatag	aaaaggaaaa	cggattatga	atatcatcac	480
actcaaggtg	cgatagtggg	accgctacct	atgattcgtg	cagggctgga	agctctacta	540
agaaaatcac	cggctacaag	atacaattca	tagatgcacc	cgccgatatg	gttgggtaga	600
tgtaatctcc	ttttattgtc	ccgatgtcgt	tttcatgac	cactcgtatc	gggactcacc	660
cgaaacgaat	ccgacaaggc	atgtccc				687

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 552 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...552

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

caggacctgc	caaaagaaaa	gtttgccggc	aaattatgct	cggcaccatc	tctcggaaaag	60
aagaataggt	agtagcaagc	ctatagtggg	tggaggagac	tatatactga	tggaaagagg	120
tcgcctattg	ctaccgattt	ctgatattat	tccatttttc	ggttgctctg	ataggaaaagc	180
aaatgtccct	tttgtgaccg	gtcgaaagta	aaagatccga	tgccacaatg	gaagcaccat	240
cagcttgaat	agctgtgcga	ggaaaagcga	ttcgaaggca	cgataggaga	gttcataccg	300
gtgagttcgc	taagctgcga	ataagaggct	gttacgtagc	gttggttaatg	gcatcagtta	360
ctgtcatacc	ttcgggtgta	atccatgcac	gcctgccact	acgagaggaa	aaggcatggc	420
aacgaggcgg	ataccacgat	tcgaacgagg	gtcaattcga	tacgtgtatt	cacctccttt	480
tgatcgaatc	gagaatagct	ttgcccgttg	cactgaatct	gtcctgtcga	gggtagtggc	540
cttgatattg	gc					552

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 374 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

ctcaaagggtg	agggggagaat	taccgagatc	aatgtagccg	aaactctcaa	gatgtacgtc	60
gtgccctttt	ggatgccgac	gtgaactatg	tcgttgccag	cagtttacgg	acttggtgaa	120
ggaaaaagcc	atcggccaaa	acgtgctacc	tcggtccgtc	cgggcgaact	gatggtgaag	180
atcggtcatg	acgaatggct	gctctgatgg	gcggacattc	tgtggatatt	aatctcaaag	240
gcagtcggca	gtaatcctga	tgtccggatt	gcaagggttcg	ggtaagacca	cctttccggc	300
aaactggcca	atatgtctca	gtccaagcag	ggcaaacgac	ctcgctcggt	gcctgcgacg	360
tgtatcgccc	tgcg					374

(2) INFORMATION FOR SEQ ID NO:1063

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1165 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1165

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

ccaaattctg	aatgtgtact	cggaaggcgg	gaacacacta	cntccaatcg	gaactgcaaa	60
tccgtactca	atagccgtgg	ctatgggctc	tttctggaga	cctgaatgga	atgcgcactt	120
atgcgggaga	taggatgtgg	gctttgtcgg	caaacgggaa	atgccctatg	atttagatcg	180
tgatactaca	caaatccttc	actggaggag	atgactcgct	tggctataga	gaagctgaat	240
cgttcgagga	aggctttttc	cttatggctg	agggtagtaa	agtggattgg	gctgacatgc	300
caacgatcct	gtggggattg	ctaccgaata	tcttgctttc	gatgtgcttg	tgccgtggca	360
ttcgactttg	cccgctgtga	cggacaaacg	gcgtcatcat	cgtgccggat	catggcaata	420
gcgggtgtaag	cataggcaaa	caagtgtgaa	agactatgat	aagcgttctg	caaaagacct	480
tttcgatcaa	tctgtcgctt	ccgcctgaca	gcagacggac	ttgcaggcgg	tttggctgaa	540
ctcccgcgga	caaggctccag	ggtttggtaa	gcaatatctg	cggattcgat	tggacgccaa	600
agagttggaa	gctctttata	attgtccgga	ttataatata	gtcctatccc	caaagagcag	660
cgcaggcaga	cggagaatac	cctctaagcg	gttcgctcag	taccttcacg	gcacgcgttt	720
atacgaagca	cacttgatcg	gttttacgac	gcacggacat	actgccgaag	aagtattgnt	780
ggcgcctatc	acccccaaag	atacacgccc	gatgggaatg	gtcataaact	atgactgaat	840

gactatctct	gccgtctctt	cgaattagga	agccaattgc	cctccttacc	gacaagatat	900
ttgctcccca	tacggaagta	ttccaaggca	tagctacagt	atcaaagacg	gaaagaagga	960
aggagaactg	cctgttcttg	agtgaaaaaa	ggtagccatc	gcttactggc	gagtcctttc	1020
tccaatacgg	tatcttcaat	aagaaagcga	ttgatctgtc	ttccgtagta	gtctatgtga	1080
taagactaag	acttttctatt	tgcctcgtga	actgcgttct	tattcgggaa	taagccgctt	1140
gatgtgtgaa	gaaaacccat	caaag				1165

(2) INFORMATION FOR SEQ ID NO:1064

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

ggttgatctc	ctttcttcgc	aaaaaggaca	ctaatactcc	ctgctttaaa	atccggaaga	60
ggtacagcac	atttgtgtag	ggagccattc	gtgtccgaga	aaattgattg	aacatttcgt	120
ctctctttat	ctatctgttt	tggggatttt	tatgatatag	tttgataatt	gcacttattg	180
taaaagtatt	atgtcattta	tgagtgggta	atctgtaata	gtataataat	atatgaaatg	240
atggcttgag	tggtatgttt	tcatgcagat	cggaaagaat	ttttgttg	acataatggc	300
ttgagataat	ctgtttgtta	gtaaatttca	gcgtttttgt	gtcgcgagca	ctgaaaaagt	360
caattcttag	agaagtctgc	cgatattgtt	atgggtgtcc	gtattttttt	ttgcctcaca	420
ggtgccccgat	ttcccccccc	ctttttgatc	gaatatctgc	actggcaatg	taaccttgtg	480
cacaaagaat	taataattcc	acagggcaat	cgcatttgaa	ccgttacaca	cftatagatt	540
aacgattgct	acgctcgggt	atcaaacaag	tacgaattaa	tgggaccttg	cacaataagc	600
aggcactttt	gtttattctt	cttatttgtt	gtcaggcact	atttgggtaca	cgccggattt	660
ccacaagtgg	aaagatagct	ttccacgggt	gaaaataaac	tttccacca	tggaaaattc	720
tttttccaac	ggtggaatct	acttctcttt	aatgagtacc	cctttgagac	atccaacgac	780
atgacgtcaa	cagcacttgt	gtctctccaa	tcctcgcctt	gtctcccgtg	tatcaccttg	840
tgtgccacgc	tgtgccgtct	gattcacatt	acgtccatac	gaccgatacc	tcctccggct	900
ccaataatct	atccggctac	cgtcgggtaca	cgtagcagcc	aacaatacca	atgaggagaa	960
acccgctcga	atgaaaccgc	aaaccaattt	aatgcgtcga	ccccgggggc	agcctgtcag	1020
ggcgatcgct	ttgaaatttt	ttagtctctt	tcctctatga	tttgaatctc	tggcatatga	1080
ttcgacttgg	ttttgataat	tgaatgtagc	aatcggttagg	tttataatgt	gttgacagtt	1140
caaatgcgat	tgccctgtat	ccgagaaata	atgcagaact	atctctcgga	aaaagcacta	1200
cctttgtagt	cattccaatt	taattcgtag	taatcaagca	gcaaattgct	tgtgatggaa	1260
aaggttatcc	gcaggctctc	atatcggtct	atcataaaga	aggtttggcc	gagatactgg	1320
ccgattgaac	agacaagggg	tagagttcgt	atccacagga	ggaactcatg	aattatcact	1380
tcgctcgggt	atgcgtgtcg	ggcgtggat	gactcgacgc	gtatccttcg	atgctcgggg	1440
gacgggtgaa	gacattacac	ccaatgatct	ggcggttatt	ttggctcgtc	gcgggtcatga	1500
aagcgatgtg	cgagaagtag	cgagtacggg	ttacctctta	tcgatttggt	catcgtagat	1560
ctatatcctt	cgaggccacc	gtggcatcag	gagcatcgga	agaagatatc	attgagagat	1620
agatataggc	ggtatctctc	tcattagagg	agctgccaaa	aacttcaaga	tgctcgttatc	1680
atctcgtcac	gggcacagta	tgccggattt	tacagctgct	gaaagagcag	ggagctcgaa	1740
cctctttggc	tgaacggggg	atccaagagt	cgagtgcattg	a		1781

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 624 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

gtatagcctt	gacggacgaa	tacgacacga	ccgaatgagt	cggcgatgag	acgatcggca	60
gattggctgc	atcaggcagg	ttcgagcct	cccgtatctg	gcggcattgc	ggccttgaat	120
atccagtcgc	aatacggctg	tctcgggagg	gaggggaagt	ctgccgggtt	gtaacgcttg	180
tgtccgtcgc	catcggaag	aggaggatca	gcttgcgcc	ccactgctcg	aagtcggctt	240
tcacctctcc	aaatctttca	gagcatgggt	ggtaggctcc	tgaccggctc	cgagatggcc	300
atcgcgaaqt	agccgcgtcc	tgtggtagag	aggagcgagc	ggtttctgca	tgggagagat	360
cgtggtagag	ctgttcggca	ttgatggagc	cgtcacctga	atgtcggtcg	aatcgtgtag	420
cagttcgagc	ggttggcgag	cgtcttaccg	gcttctaccg	tgaacttcct	catccggcac	480
aatacgctgc	actggccata	cgcgtaccgg	taacgaggaa	ataatgacct	gcattcattc	540
cttggggcgc	tcgaagagcg	tcttcaggtc	agtcggttca	ttttcatcta	atagagcgtg	600
cggatgatgc	ccgaggtgta	gctc				624

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 567 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

gctccttacg	ctttaatttg	gtttgcaaaa	atagtaaata	tccttagtat	cggaaaaata	60
caatcgctcc	tctctcgatc	tttcctcgcg	ggaatgagaga	aggtagagag	aagagcgact	120
gcagcgggaa	taatctctgt	cgggtgcgcg	ggcctataat	cgagatcttg	tatccccggt	180
ccttatagtt	ctacttgaag	gtccggatat	taccgtccgg	ataaaaccca	cgcacgatga	240
tcaaggaccc	gatcggctct	gtccggcctc	acgaacgatg	tcgctgacat	cggccccgag	300
cttaccgggt	ggcggttgat	cgaagggatg	atgaatcctt	tctgatacct	gcatecttga	360
atttccccga	gcttacagag	gttacctcta	cacataagaa	acaccatagg	atcgcatctg	420
ttcgggcactg	agggtccttg	atgatgctcc	caatacatctt	ccggtcgatt	cgnccgggtga	480
ttaccgaagt	cttccttcat	tggtctttga	gcgtgacngt	cagttccttg	gtcgcttcct	540
acgattgatg	gtcagcttca	ctttgtc				567

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

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aagaggccgt attggaaga tgaaacggtg tttgcgaaac caaagaagag gccatgctac      60
ctttatgccc tatgctacaa cagcattgtg caggctgaga gcggtatcag aaaccttggc      120
ttactccttc gcaggcagaa tttttattct gaacggcttg tggatatttc gctattttcc      180
cgatgcccggt actgccgtac cgattttgtc gaagatctgt tcgatgtgtc tgcattgggat      240
accatacagt accatcggtc tggcagatga aaggttggga tacaccttta tatacaatgt      300
aaaccacatc tttgaggaca atcctccatt tattcgcat cagagactta tacctcggca      360
gtggatccca atccgacagg ctcttatcgg cggactttat ccttccgaca ggctgggaaa      420
agaaacgcgt ttatctgcat tcgatgggtc ctatagtggg gcttatgtat ggataaacgg      480
gcgttatatc gctacactca agggggcaat aacgatgccg agttcgatat cagtgcggcg      540
ttcgtgcggg acagaacaat gtgagcatac aagtagtccg ctggacgggtg cttcttattt      600
ggagggacag gatatgttcc atatgagcgg attgcatgcg atgtctatct gtacgccacg      660
cctcgtactt ccattcggga tcattaataa cgagcaagtt gcatcccgaa tccgactata      720
ccacagggga aatatcgtag ccgtcgagat ggacaacaga gacgggttcg ctgcacgtaa      780
gacttcggaa tacgtctctt ggatcccaaa gggaaagtgc tctgggagga acgaagcaaa      840
cccgaactgtc tgtgggagaa cagaaacaaa gccttcattt tcgaaagccg atcttcgcaa      900
tctatccctg tggac                                     915

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(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 889 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

```

gtaaaaggta tgagcatgaa agaagccgct ctggagggtga accactgggtc cactgagaaag      60
ctacatacag cccagcgcac ccacgcactc gctctccgtt gcaacgggtga agaattgctct      120
cggacgttgc ggtgaggagt ccaccttacg gtggctgccc tgcgctcggg aggtattcct      180
gccagacagg tctatagccg cgctgggcac atacggacga caaccacgca tgggtggagg      240
tatggtagat ggcaaatggt acttcacgag agcctgcgaa cetgcagccg agctaacgat      300
gcatggttca acagctccgt tgtccgcgcc atgctgacgc atagcgggtc ttcggtcgtt      360

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acgaaggtcc	ggaagagaag	ttgttccgca	cgccaactac	acggagatca	actgtatcga	420
caactatgcc	ccgacggaaa	tatcgaagtc	aaagtcaccg	accgctccgg	tgctgtggtg	480
gaaggggccc	tattcgtttc	tgcattctaca	actattccgga	gttctatccc	gtgggtgacga	540
gcaatccgat	gctcaaggac	tggtttccct	gcgtgtaggc	aaaggcgaat	gctcatttgg	600
gcagccaagg	acggactcct	cggtttatgcc	ctgtccaggc	cgacgatcgc	aaaccgctgg	660
ccatcgcact	ggacaacttc	gaagcaagcc	cgaatgggccc	gatttcaaaa	tcgtaccacc	720
tgcaggagat	cccatcctac	tacctgtctc	ccacagcaga	tcagcacgaa	cgacgcccgt	780
ctccgcgtga	ggattccatt	cgggcagcct	atgaagccac	attcgccaca	gccagcagtc	840
tgcagcactg	gctgccgaat	tgggtgtgga	tgcgcctgcg	ctacaggca		889

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

acgacgtact	ggccaatata	gaagagcgcg	acaggatcga	ctccacacgg	ccgtttcacc	60
tttgagacag	gctgaggatg	ctttagtgtc	ggacaatttc	atatgaccat	tccgcagcag	120
aaggcatggt	tgctggagcg	ttttcagaag	tgaccggttc	atgattccaa	tagaaataga	180
cagcggatcg	ggatttgctt	cgggtgtggtg	aatgctattc	gtcatgccga	gaaagcaatt	240
ggagaaaagc	tccgataagc	tttactgcct	ggcgatatt	gtacacaata	cgctgaggtc	300
gaacggttag	gaaagaaaag	attggagacg	atcgattacg	atgtttttcc	cgaactgcgtg	360
gggcaaagg	actgttgctg	gcccattggg	aactcccga	atctatcgga	tggcaggaga	420
aaatggggta	acgatcatag	agccacctgt	cctgttgta	tccgcttgca	aaacaaaatc	480
aaatcacgat	cgaagctacg	cgcagcctcg	gcgcacaagt	cgatcatctat	ggcaaaaagag	540
gcatgcggaa	gtaaacggtc	tggtcgggca	gaccgaagga	acggctatgt	catagagagc	600
gaggaggagc	tggacaaaat	agattacaca	cgtcctgcat	tctcttttcc	caaacgacca	660
agagcctgga	gggattcggg	cagatctcga	cagcatcagc	acacgtatgc	agccgggtgt	720
aactttcgag	catcagatac	catctgtcgc	caagtggcca	atcgaatccc	gcatatcgga	780
gcttcgccac	tgcacacgaa	ctggtgttct	tcgtagccgg	agagaaaagc	tccacgggaa	840
ggtactcttc	gggcattgtc	tggcagccaa	tccgcgcagt	attttatttc	ctccccggag	900
gtcatcgtgc	cggatatgct	ggttcctctg	cggccagcat	aggcatctgc	ggagccacct	960
ctacgccccg	atggcagatg	aagaggtggc	atcgcacatc	aaggctctat	tgtaaaactcg	1020
gccgccaccg	caagtggtcg	ctatatectc	ctttataatg	catcccctga	taggtgcgtt	1080
gggtgcgata	cgcgccacat	tgtacggagc	ggagtgtacc	aaataagcag	gactacattc	1140
ttggccgata	cggtttcgta	gctgaccgtg	gaatccgctt	caggaaaattg	cccgcacgca	1200
tgatgtgatc	caactgctcc	cacttccctt	atacagagtt	gtcccgggag	ggatctgaga	1260
gagaggacag	cccggagggt	gtacaactcc	cctgtctcgg	ctttgccggc	tccgggcaga	1320
acctaccggc	ccgtaagggt	tcgatcagag	gggattcgtc	cggattgctg	ttaggtctcc	1380
catgatcagg	atgaaaggga	ttgtgccggc	ggcttagtat	ccattgcatt	tcgttctcaa	1440
cagagtggcg	gcatcgtgcc	gataggcatc	gattggcgca	cacctcctct	gcgagaagg	1499

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1100 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1100
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

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ttgacgtgta ctgaaaaaag ttgacagttg ggcggggatgc aaccagtatc attatgggca      60
aacattttaa caactttgaa cgccttagca tccttgagat tacctctcgg ggtcagatag      120
caaagtagcc attgagcaga aatatggcta agtcatggtc tcattcgctc ttggccttagt      180
aaatttggac tcgaagtaaa gttcatccgg tcccaatgaa agtgtcccaa tccccccaga      240
gtgagtaccc ctgaacgaaa aagaagagtt agagcagcta cgtaaagaaa atcgggtcctc      300
aagagtcgtc tcaagcgaga agaactaggg catcaagcct acagctactt gtagagttgg      360
cagaagaaac ctacggcatt cagatacgaa aaactccgaa gccaaagtagt tcaccgttta      420
tcagagccgg agcctaggta tctattgctc gactctgcca actgcttggc tttagccgtc      480
aggcctttta aaacgtcatc tcaacgattt agcacaacat gaggaggatg tcctatgcat      540
agtatcatcc aatattgttg gcacttaaga caagcagagc acctacctaa gccggcttcc      600
gagagctcat ggtgctttgt cagcaatact tcggcccaag ttcacgcttg ggcgcgatcg      660
cttttgcgcc ctactcagac gccatgtatg atgctgcgca aacggctctgt gcgccctcgg      720
acaaccaact ctcggatagg ctctacaagt atgaagacct gctcaatata gaggcctaagt      780
ttgtccctcaa agacctgggg aactccttgt agcagacatc acctacgtgg cttccaagat      840
gggtttgcct atctctccct actgaccgat gcctatagtc gcgtatcgta gggatatcgct      900
tacatccgac cctggaagtt gaaggctgtt taatgctctg catcaagcct ttgctttcta      960
cgatcaacat caaattgata gaccaatatg attcatcata gcgaccgagg cattcagtat     1020
gccggtaagg ttacaccgat ctgttgcatg ggcgaggctg gcgcatcagt atgactcaac     1080
gggagatcct ctgcataatg

```

(2) INFORMATION FOR SEQ ID NO:1071

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 391 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...391
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

```

tcgactctnn aggatccctt gataattgat ggaaaattcc acatttcttc agaaatttac      60
acntatggta actttttgat aattatagtc ttacaccgcg tcttttttga tggatcatctc     120
atttcttcta aacctattta ttgatacttc tcccatttct ccttgaacca cgcagcaatc     180
ggaactctgt ccacgacagg tcaagcacgg tcttgccatc cttttcctcc ctgccccacct     240
tcaaggtagc ttctcaacgg tgaacgaacg cttgtactca tccgaaaaca gtttcccgtg     300
acgacaagga cttttccctg tagcagttca tcagtatgtc tctggataat ccgaccgaac     360
ggcaaatcct ttctattctg aggaactcgg c

```

(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

atatgattca	tcatagcgac	cgaggcattc	agtatgccgg	taagagttaa	ccgatctggt	60
gcatgggcga	ggctggcgca	tcagcatgac	tcagacggag	atcctctgca	taatgcattg	120
gctgagcgga	tgaacaatac	gctcaagact	cgtggcacat	ctcctcttcg	aagcagtctt	180
ttgatcaagc	actccttctg	tagaacaagc	cgtgcgcatg	tacaacgagg	cgcgtccaca	240
tcaagtctag	gggcgaaaac	gcctatgcaa	gtcattgcgc	cagagtctaa	aaatcgttac	300
tggcaaggat	cgaacattgg	ccggagattg	cccccgagct	atacgaagga	tgaatgtcag	360
acaaaagagct	aactttgtct	gtgtcaaccg	aattagactt	aagggtaagg	ggtgtcaacc	420
taaaagtagaa	ttatagaaaag	accagtaaac	caattgtaga	actatcccg	ccaactgtca	480
acttttttca	tacacgtcaa	gcacaattgc	ggatcgaaaa	aagatgggtc	gagaaaaaat	540
aaaactcgag	ccaaaagcaa	aaaaatctcg	cgcgtaaaaga	ttttcctttg	gttcgagttt	600
ttgagatttt	aggctcggtg	attctcgcgc	tttcggccca	aaaacaacat	acgacttttc	660
tcagtacacg	tcacaatcaa	gggaaatcgg	gaaggatcag	tcgcccggat	agggatctgc	720
agaaggagga	ggcgttcgac	tccccatagt	ttgttggggc	gcgggtcccat	cttcagctcc	780
aaaagccgcc	ttgggctatg	tcgctatggt	ggaaccatgc	tttatccaag	gtttcccgtt	840
gagcacggcc	ttttggatgt	atttggtttc	agctccggca	ccttggcgat	gatcgtaagg	900
tg						902

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1280 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

gagaccattg	cacggcattt	ttgcgacata	tttgcttgca	ttgcttgcca	tatcaataat	60
atttagtatt	ttacacgtat	aaacaagagc	ataaatatgc	tacaaacaa	actgtcaagt	120
ctacactcag	gttcgcagag	atcgcataaa	cactctttcc	tgcgtcaaat	caatgccggt	180

tttgattggc	gtggtatcgc	acactgctga	acaagaaata	caccaagaca	cagaatgcc	240
taggtaccct	gcctacgatg	cgctgttgat	gttcaagatt	ctactcctgg	agactgggat	300
ggtttgagtg	actacgaggt	tgaggagtg	atcaacgact	cctgcttttc	agtgaattcc	360
ttggcttgga	cctcggtctc	ccttcccccg	acatagcacg	atcagtcggt	tccgtagtga	420
actcactcgc	ttggggatta	tgataaactc	cttcgggagc	tgaacaagca	gttcaagaag	480
cacggcatca	cgtatcgat	caaggcgcca	tcgttgatgc	gagcattgtg	gatagtccta	540
cgccctgat	ggcaacgtgg	tcatagaagt	ggctgaagat	cgagaggaac	tcgttcggag	600
gaagctcgta	cacagccagg	aggcttatca	ttgtgaatca	agagtggcaa	accgggagta	660
gactcggagg	ctcgttgggt	acgcaaggca	ggcactatcg	gtatggatac	aagaagcacg	720
tcttgacgga	cgagcgggtt	tggtagaaac	agtggtcacg	acctcggcta	attgtgcaga	780
cacgttgat	tacctgagct	gatcaagaag	tccaagtgtg	cgggaggaat	taggttttgg	840
ccgacaaagg	ctattgcagc	aagaagaatt	cggagtattt	ggccgtcaag	gtttgataga	900
tggaattatg	ctcaaggctc	atcgaggtca	atcctcaagt	gaaagtcaaa	aacaactcaa	960
tcggatgatc	agtaagacgc	ctgcttgata	gaacgtacct	tcggtagtat	tcgacgatgg	1020
ttctgtggcg	acgatgtcgc	tatcgagagt	tagccaagac	acatacccg	aatatcctga	1080
agctatggcc	tacaatctca	agcgtatgcc	ggggcttctt	gtgcttcagg	cgcaaaatag	1140
gcgctaaacg	accgtccctc	gagggcaatt	gccctcaggt	gcgggaaagg	ggactaatcc	1200
ccaagctgca	aaacagacga	gaatgtcaaa	aacacaccgg	gaacaagcga	gcagaaagaa	1260
cagcctcttt	gtgcatggtc					1280

(2) INFORMATION FOR SEQ ID NO:1074

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

tgctcggtag	ccgaatatgc	cagcttctcg	cgtatggcag	ccatccctag	atagccagca	60
tccagccgat	accggagccg	aatccataga	cggtagcctc	ccgacattga	taaactcacg	120
ctgctgcatg	aaaagcgatc	ctccgagatc	gcgcagttca	ccgcatcaa	gggaaggaag	180
ataccacg	aagcatgagg	gaggggctga	atctctccac	caccatttcc	acgagctgcg	240
taaagatgca	atcaccgcga	taaagatgat	cagtgcagag	aagctcagat	ccactcggca	300
tattgggatc	cgagccaaga	aagagcaccg	gccttgaaaa	tatgttctgt	aacagatagt	360
tgatgggcaa	ggtgcagacc	aagatgaaag	tccggcagct	ccgagtcgga	tagaggtctt	420
cacattcttg	gaaacggcca	aaaagaacac	attcccaagt	agtaggcaaa	aacctatattg	480
tccacgaata	cgagcggaca	aacatactta	tgtaatccat	aattgatact	gtcttaatta	540
ttatcaggcg	tgctctactt	agttctcttg	caaatccttg	ttacggggccg	atgtaccacg	600
atgacaactg	ccacggtgat	cagagccatc	ggcggcagat	catcagaccg	ttattgacat	660
aaccggattc	gtagaagctc	ttgggatgac	ttttatatcc	agcaatgtac	cggagccgag	720
caattcgcg	aagaagcgat	aataaccaaa	acccatccat	atcccgagacc	gtttccgata	780
ccatgaggaa	tgacttccaa	ggacgatttg	ccaaggcaaa	agccttcaaa	cgtccatcaa	840
aatacagttg	gtaatgatca	ggccgacgaa	aacggacact	gctg		884

(2) INFORMATION FOR SEQ ID NO:1075

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...686
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

acagccgctg	catagacagg	accggccaga	cagccgcgac	cggcttcgtg	caaccgcatt	60
cacgcaagtc	atcgtctatg	tagcgagaga	gcagcatggg	aagaaattag	aacatgctta	120
ctacacgttt	caaggcttgg	aggaattctc	cacttcctcc	tcggtattgt	agagagcaaa	180
ggaggcgcca	gccgtgcatt	gagtcacatg	ctttcgagta	gcggttcggc	acagtgatgt	240
ccggtcggat	ggctataccc	agccgatcga	gcagcatgcc	gaggtcatag	ggataatgtc	300
ccctataagg	aaagagagca	caccgctctt	gtgttcggct	tctcgatgat	acgggcattg	360
gggaaagctc	tcacgccttc	ggtggccatg	cgaggagtgt	gtcttcatgt	gcggctatgg	420
cttccaaacc	caatccttcg	agtagtcgag	agctgtggcc	aaagccgtgg	agccgacata	480
gtccggcgctg	cggcttcgaa	cttatagggc	aattcgttgt	aagtgggtctt	ttcgaatgta	540
cottggcgat	catctctccg	ccaccgtggt	aggggggatc	ttcttcaaca	ctncgctttg	600
ccatcaatac	gcctattcct	gtggtgccgt	agacttttgg	ccggagaagg	cgtagaaatc	660
cgttccaact	tccgacatct	accggc				686

(2) INFORMATION FOR SEQ ID NO:1076

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 713 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...713
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

aaatccacta	cgtattcttc	tgtaatgcaa	atgccgttta	cacgaatacc	tcgcgaaaat	60
ccaccaaatg	aggagatgta	aacaagccta	cccgcatacg	gcaacttgta	agatagcagc	120
cagtgtagag	gcggttagagc	ctttgcctta	gtaccggcca	catgtatcgt	tcggtaagcc	180
ttgtggggat	gtccacacag	cggtctatgg	tctctacggt	accgagcccg	ggtttatatg	240
cactgcccct	tggtgttgga	agacaggggt	agcggtaaag	agataccgga	tagctcttcg	300
taagtcatca	tgctgcccgg	atgatggtct	gctctcggtc	gggccaacgg	aaacgatagc	360
gataccgact	cccaattctt	tttccaagaa	gggatatagt	cgctaaattc	tttggggaaa	420
tcagcctcgg	aaaccacatt	ttcattgact	gctgccaacc	ggggagttcc	ttgtaaaccg	480
gcgttacccc	tctgtcagat	ggaaggggaa	attgcgtgtc	tccttgccgt	ctatctcggt	540
gccacgcaag	ccttgatcgt	ggggaaaaga	tccatgacat	cgcttttctc	atgatcagct	600
tggtcacacc	attcaacata	atggtgtagc	gcaaggcacg	aggtctatcc	agccgcaccg	660
gcgtttgcgt	cccgtcacag	agccgattcg	cgttccaact	tacagagctt	ggc	713

(2) INFORMATION FOR SEQ ID NO:1077

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

gctgaaaaag	gccgattcgg	gagggtgataa	aacaaaggca	cccaccagtc	tatagggaaac	60
tcgatgggtg	ccttgactct	ttgaggaggc	tatggaaggt	tattcctctt	tatttgatcat	120
agggatattc	ttgctttgtc	cgaacaagcg	gggcggtatg	acggatacgg	gcgggatgga	180
accggcctga	tgagccggga	gtatatgtgg	catattcatt	gttatttggt	cgtaaactgt	240
ttgtcatatc	gttctatatc	aatcctataa	gcacttttag	caaagagttt	tatatctcga	300
taggagcatt	cttggccggc	aaatatagta	aaaaccatca	acctggggaa	tcgaatttca	360
catcgcaaat	cttctccact	tcggtcggct	caggactatt	tgtttccaga	agaattttca	420
ctgtcaggaa	aaaagaatcg	gttatttccg	tccgattatt	tggtcgttat	ggaattatta	480
ctacttttgc	cctgggtaag	tcctatacgg	catgctccct	ttgattcccc	cagggtctgt	540
cgcagcaagg	gtattaggtc	gtagcggcgc	gatatagcca	gcttaccctc	cgcctcttta	600
gctcagttgg	ccagagcacg	tgatttgtaa	tctcgggtcg	ttgggttcgaa	tccgacaaga	660
ggctcgaaaa	gcattgcacc	gattcttcag	cttggtatga	gaagtcgggtg	cagtcctttt	720
ttactgttcc	taatctttca	acaccttggt	tccgttccgg	atttctaaag	ggctgaaagg	780
aaaacgcagt	ttttattggc	ttcgtttgtt	gcggataatc	cttatttttg	tatcatttaa	840
gggataataa	agttcatgtc	aaggaaaaac	cataccact	attgttgctc	tggatgacag	900
ctctccttct	gacgtatgt	ttgcctctgg	aggccaacgg	aatcgcgctg	ttaccgtggt	960
tatcgatgcc	cggacacgga	gacatgattc	gggggcagtc	ggtaatggtt	tacgagagaa	1020
agacatcaat	tggccgtggc	tttgcggtg	ggacgactga	tcaagagcaa	gbatccgggtg	1080
tgaagtgct	ttatacccg	gagaaggatt	tcttcgttac	cctgatggac	gtgccgaata	1140
tgccaataaa	aacaatgccg	acctttttat	cagtatcatg	tcaattcgca	agagcgaggt	1200
catggaggct	atggtaccga	gaccttgtaa	tgggacatga	acgtaacagt	aaaaatatgg	1260
cggtagtcca	gcgtagaatg	ccgtcatatt	gatggagaaa	gactatagga	ccgtttataa	1320
aggtttgacc	cccgttcgtc	cgagagttat	atcatgttcg	aactgatgca	gatacgtatc	1380
aggatcagag	catcaaactg	gcccaacaga	tccaaaaaag	attgtggcca	agggcgctca	1440
tgataggggg	gtgaagctcg	gcaatttggc	gtactcgtgt	tttctgccat	gccgagcggt	1500
ctcgtcgagc	tgggctttaa	agcaatccgg	cggaggctcg	ttatttgggg	tcggaagccg	1560
ggcgtgacaa	ttggcttcgg	ctatcgcccg	aggatttgcc	cgatacaaa	aggattagac	1620
agacgttccg	gtaaggtgtc	cgagcccgca	ccacaagcta	ccgaggagag	gataaggttg	1680
aagtcgaacc	agaagacaat	ggtatttctt	cgggtgcagat	atgtctgacg	gcaaggaaag	1740
tatagctccc	aaggggcatg	ctgtaagccg	gatgagggtg	ctcattccgc	gaagaaaacc	1800
tataaaatac	agacctgtct	tccacgacga	agctcaaaaa	tggcgataag	cgattgaaag	1860
gtacaagggtg	gtcattgaac	aacgaggcgg	tcgattcttt	tatcttacag	ggcggtttcc	1920
agcgaggatg	aggctcgtca	ccttcggaaa	aaagtcagga	aagtttccct	gatgcttata	1980
tcgtggttta	tgaagcgggc	aaacgtgtgg	agagatatat	tgaattgtc	ggaaagcatt	2040
acttagaggt	aacaataaag	aaatgagaat	aagtaagact	acaaagatcg	gagcattgac	2100
tctcattctc	tttttctgct	gtacttcggc	ctgaactacc	tgaaggatt	caacgtttca	2160
aacggggcaa	tgtgtattac	gccgcttttc	ctgaagtga	gaacgcaaca	ttgccagtc	2220
cgtatttggtc	aatggctata	aggtaggagt	ggtaagtctc	ttagtttcga	ctataagaat	2280
ggtcgttcta	tcgttggtgg	tatgacctcg	agtccgaata	tcgtatgccc	aaaggtagcc	2340
atttgcccat	tcccagacag	ctttgagtg	agcggagctt	cgcatacatc	aaggcgatcc	2400
tgggatggat	acctgaatcc	cggggatacc	attcggctctg	aaactcccga	gatattatgt	2460
cggtaacttc	gaataagatc	gttccctctg	tcgtgaacag	atgccgaagg	tggattcagt	2520
cattgtcggc	ctggcgaaata	tgggtcaaat	cccaatttgg	ccgtaatgat	ggagaatatg	2580
gccgcaacgg	ctcagcgcta	aatcgtttga	cctgcttctt	ggacaagtcc	atcgggacgc	2640
aattgctgcc	gtcatggcca	atacacgtac	cattacggat	aatgtggcaa	tgcttcggaa	2700
gaattgaaac	agttgaaact	ggaggctctg	atggccgaat	tacagctaca	tcagagaatc	2760

ttcgaagctt	ttccgatcaa	attcgcaatt	ccacgggttcg	ctcgggatgc	tcttaaacga	2820
caaatacgctc	tacatgcgac	tgatagtatg	gcttcgagtg	cggatgcact	attgcgcgac	2880
ctcaaagcca	acccaaacgc	tatgtacact	tctccgtttt	ttgatcgat	gtgagagaga	2940
gagtatagca	tttagcagat	atattgggtat	gatgagacga	atttttctcc	cttcttgctt	3000
tttctcctct	tattgcactc	tattgggtgt	aagcagggac	aaagtcggga	gcggggcagt	3060
tgcttgcaat	gatgcacgag	gcatacgcga	tgccgattat	tccggagttc	ggattttggc	3120
agacagtcctc	catcgattata	ctccaccgat	acagtggttc	gtaaggaggc	tttgtctctt	3180
agccgcaggc	cgagtacaaa	gaatgcgaac	gcaatctcgc	cttcgccgat	agtgtttgct	3240
tgttctctcc	gatcggatcg	acagcatgtc	ccatcccttc	agtagacttc	ctctgtggag	3300
ggaaggctctc	ctgaattcta	tctctcgggt	ttgggtgaggc	ttccgggtcag	gaacatactc	3360
gtttgcggtt	cagtacggac	agcttggcaa	tctcattgtg	ctgagtgttt	atgccggagc	3420
cgaggctatc	atcatactgc	tatccgagtg	acggatatgc	agaccaagtc	catgctacaa	3480
ctcgcgacat	tccctatgat	gctgcactta	actatcgatt	tgccgattgg	ggttgcatat	3540
cgaaatagtg	acctatcctg	tcgaagagac	ggtaaaatgg	gtgagctttt	tattcaggcc	3600
gattccgagg	gacatgctct	tcggatgatt	tgatggccgg	aggcaaagcg	atgcatacat	3660
tccaagtcctc	gaagacgggt	tgaaatcctt	gtctgagacc	gctcgtctgt	cacaaatgta	3720
cagcatcgta	ctactctcat	gggagagaga	gaaaaggcag	aaaagcgtat	ccgtatttga	3780
gcgacaaaact	tggtttatct	tcccgataga	ggtcggctat	tttctctatc	aattatttca	3840
aacactatca	tgtctgaaac	gttttcgggt	cgttcgtccg	cttattgcgg	cagaatatga	3900
acgttggtttt	tctcatactc	gtatcgtagt	cttgtcctta	ttatatccat	tggtgaaaga	3960
ctggcagggtt	tcgacccgaa	aaaggccatg	ccacctttct	tcgtgtggat	ttttgtcacg	4020
ttatgggtgg	aatgactggt	gctacggcgg	tcagaacggg	ctttctacag	attctactat	4080
cttccgcaag	ctgtggttga	tctcgtttgt	tggtgcgcgg	taggccaact	gctgggcttt	4140
gccatcggag	cgatatggct	tttcttggtg	tttctatgtt	gtatgctatt	gctcaaaaga	4200
aattctatct	gccgtaggta	ttcttggtct	attggtagct	tactatctgt	ttcagatgac	4260
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cttctgaatc	agtactatgc	caatccattt	tgtctccgtt	ttcttttgat	aaattctatc	4500
tgaagactat	attccgacat	tggtcatcgag	tttctgtatg	ctccattgga	cgcatttgcc	4560
catcccactt	atatcttctt	gggcataattc	gctattttta	tggcagcgcc	gtacgtcagt	4620
atttctatctg	ggagcaaacg	gtatctacgg	tggaaatgatc	tatggtttgg	ttgccttgtc	4680
atgcttttgt	tttattacc	aaagcgcttg	gccatgctct	tcattccctt	gtccatcatg	4740
ttcttttttt	tgggcgagcc	tttttctctt	ctcagaagaa	aaaacttttg	ttcacctctt	4800
tctgcttctc	atcgtaggcg	gttttatctt	caacggcctc	ttgtctcatc	gttttttgcg	4860
gacggagagc	gcatgcagat	gcgtgatata	gccatggatg	catcaatcgg	catccatgga	4920
caggtagctg	gttaggcact	atggacaatt	attgcaggcg	cagatcgata	cggatatttt	4980
gttgaagcat	ccgcacaaca	gcttctggcc	gatggtatgc	agcttggtat	tcccgggatg	5040
gttggtttggt	tgtattcgta	ggcggtttgt	tttatttttg	ctatcgcgat	cgcggaatga	5100
tttctctctt	ttctacctg	ctatcctcct	gacaatggca	gtcgatcccc	tctgatcttc	5160
gttcgagggtg	cctattttgtt	ggcatttttg	ttctggtatt	tgccgtttct	ccgactcgaa	5220
agaaagactt	tgcttgaaa	aatttttaag	tttgccctga	tcctcagatg	atcagagttt	5280
gtttccggtat	ggttgaaaaa	tgaaaaagca	aaaacaggga	aaattatttt	attccatcag	5340
caagtggcgc	ggatgttcga	tctgccggat	tccactctgc	gttttttgga	aaggagtttc	5400
cggcattaaa	gccacgtact	tccgaaggcg	gcacacgtcc	tatacagcca	aggacatcga	5460
aatggtgcgg	ctcatccacc	accttaaccg	gaaaaaggac	tcacacttgc	aggcacgaag	5520
caagctctca	agaacgatat	gatggtacta	cgcgcaggga	agaagtcatc	agtcgtctga	5580
aagaaaccgt	caggaaactat	gtgatatccg	tgatgccatc	gaccaatggg	agcggaaaat	5640
atgtactgaa	ggaaaaacga	tgctgcgatg	gatcccgaat	tcgacttctt	ctgaaagcct	5700
ggaaaaagcag	cggactctct	gtcggtatga	aagcgatgag	ctcttagccc	tgcttgagag	5760
ttgttcatac	agagtggaa	ggtgaaagcc	gaagagctat	atgctatcgg	tggagacaag	5820
ctccaagacc	tcgaatcgty	ggtgtaggty	agattcgtgc	tgagatggty	gggccttccg	5880
caagcagatt	ctgatagata	ctttgycggt	cggacgcatc	ttggctccgc	ccttcttttg	5940
cttcggagaa	tatttttacc	gttaccctg				5969

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6272 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...6272

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

aggctaaagc	agagcagtcg	ggagaagtgc	atatcccagag	gagagatctt	aagaaggtaa	60
agaagagcat	cagaaagatc	atgtagggtg	tcagaaaaaa	agcggcgaca	gtataggcca	120
tgccaatacc	cccaaagcca	tggcaatggt	agtgccagat	ttttgaggat	cttcatcgat	180
tttgattctt	ttttcggcta	accatcgccc	cacagcctgg	tgtatggatt	ccaatccgaa	240
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(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2263 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2263

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

gactcgttcc	tgccaagggc	tttcgagcag	aaggcggatg	ctttcggccc	tacggcacac	60
gccaacggat	tgcccatgaa	cgtggggccg	tgcatgaaca	gccggcttcg	cccgaacata	120
tcgtccgggc	tatcgcttcg	gttgtgacgt	agccgagagg	gtcatatagc	cgccggtcaa	180
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aagcgcggtt	ctacggcggc	attcagtcgc	ggatgggttat	agccgtgtat	ggcgccccacc	840
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aaccatggag	agcataacga	gcattggaca	tgcatatgca	caggtaatac	aatccatgta	2220
gcagagatag	aaagcgattc	gtacagaatc	ataccacgaa	cag		2263

(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2022 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2022

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

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cgccgcatcc	agaaggcgcg	ccacattgtc	ttgggcatct	ttccggtcac	ttccggcgaa	180
aacgattgag	gataaacgga	taacggcata	gccgaagccc	accacaaaga	gccatccgag	240
tacagatccc	agaccttagt	cccttcgtgt	ccgattttca	tcagcccga	ggcacgaaag	300
tcagacatat	cagcaaggca	ctccaagagc	cgtttctgtc	cataagcctg	cataacgcat	360
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cgtgagatgg	ttccttcata	gcttctcgta	tgacaatttc	ggttcgattt	gtttaatacc	660
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ccgccggata	cgggttcgtc	tatgtagcgg	cgaaaaatgc	ttctatgtct	gtcgtgtcca	960
gaatttcttc	ccagggtttg	cttcccagtc	gccgaagttc	atctccttca	gccggtcgtc	1020
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tgtctcccaa	gaagacttta	taatgcataa	atadagaagg	gtactacaca	gtaaaatcat	1980
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(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

gcagagcggtt	tctatcctct	gtgaatgcga	tcgcagcggt	tcggaagagt	agtctgaccg	60
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atatacgacc	gatatgacga	ggtcataatg	tcgttctgcc	cgatcagcga	aaaagcggag	180
aaaaaaaaatc	gacgataaca	gccggtagag	actgttgcat	gggagtttca	ttgaactctt	240
ttgctcagag	ctgattctta	gtgccttttg	gaaagatcaa	acctccggta	tatgacatcg	300
agcaaacaga	aatttcccca	agtttccatt	agagaagtaa	tccttccctg	tcaaataggc	360
gagaaataag	aaacgattgt	cggctgtttc	ttctccctgc	acgatgcagg	acgcgattgt	420
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tgccgtggag	aataactatt	atggtataga	gaacctctct	ctcattccgg	ccaagtggga	3540
gcatcggtcg	tccaaaacat	cggagcctat	ggagtagagt	atctcagctg	atcgaggccg	3600
gttcatgctc	gtcattaccg	aacagggaat	cccgtgtatt	tcgcaattga	ggactgcata	3660
tnccgataca	gatacgtatc	ttcaagaagc	ccggac			3696

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3589 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

gaaaaactcc	aaaatgctcg	ttatccaaac	caattaatcg	ggcgaatcat	tagaatctca	60
cacatagggc	attttataaa	gaggggtgtg	cagaacgtag	ttggacacac	cctcttctct	120
tgtttcagaa	aggtagaggt	gcgggtttcag	cggataggtt	cgagtgggtc	tgtaaagggtg	180
gatatgtttg	tatcacggct	gtagaactgc	ataccgcggc	ctctgctgtt	ttgcccccttc	240
tccttcttcc	ggcacttcgg	gtttggccgc	atcctcaagt	actcattccg	tttttccatg	300
ataaaaacatc	tttttatcga	tcttgacgat	acgctttggg	acattatcat	aataataaga	360
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tttcttcagt	atataatttg	ccacaatgaa	gccctttggt	ctgagtatcg	gtatgggcaa	480
atcgataaagc	gacccttact	ttggagcggt	tcagaagacc	tttcaccgga	tatctcactt	540
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tccttagcaa	cggttttcga	gaaatcagca	tgccaaactg	accaatagtg	gtttggcacc	720
ctatatgtgac	cgagtattct	atccgaagat	gcgggtatca	acaagccaaa	caaaaagata	780
ttcgcttcgc	actcgtcaaa	gccaaagcca	gaaagacgga	aagcatcatg	atagagatag	840
ctgggaagcc	gatatagtcg	gggcgggcaa	tgccgggtctg	gctctgtctg	gtataaccgg	900
aacagacata	tcttacctga	tgacgggtga	cagcacccat	gcataattatt	tcctctttgt	960
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cttctccaag	caggttttct	tttttaacgt	gaggtcgatg	taagcgaatg	gtgtcgattc	1140
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aatgaaaagg	aaaaagtttg	acgtccattg	gatgtcgaag	cctctcgaag	ctgaaatctc	1260
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cgggagcgaa	tgccgtcacg	tagcgcaagg	cttcccctgg	cggttgctcc	atctatagaa	3060
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tcgcgccatta	gcgaccccca	accttgatgt	gggccttatt	ggccatcagc	agacggcatc	3480

ggcaggtaaa gtaagggtag caccctgctg aacgacaagg ctgtcgagag caaggtggga
cggttgctc caaatatcgg atcccgatcg ataaccaagc cgttcactt

3540
3589

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2955 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2955

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

tgcaacactt	tctacagaaa	aattccccgac	gaggctagcc	tcgtcgggga	taaaatcaat	60
cgtttgattt	cgtgttgcat	ttatcatatt	aagggtttga	caaagaaaga	gaagagacat	120
tctgcgctat	ctttgcttgc	agatgatgat	ttatttcaga	tcgatacagg	atcttctctg	180
cttctaccat	tcgcagtgaa	ggtatttcg	cggtatttcc	ctctcctgca	caggactata	240
tggatttgcc	attgacctga	atcatgagtt	gataactcac	ccatacagca	cgtttacgga	300
agggtaaagg	gcaattcaat	ggaagacgcc	catgtgttcg	acgcgatatt	cttgttatag	360
acaagtccct	tgaagcgcg	gatggcgata	tgctgtctgc	tttttggatg	gagaattttac	420
cctgaaaaca	atccgcatca	atcgggaagag	attctactcg	aaccggccaa	ccccgactat	480
cctaccatac	tgtatcgcca	gacaacgatt	tcgtcatctg	ggggatcgta	acctatttgt	540
tcataaaata	agaagatgat	cgccctatgt	atgccctctt	agactgcaca	acttcttcgt	600
cagttgcgaa	aggggtgttcg	accctctgct	ccgaaacggc	cggtcgttgt	cctctccaat	660
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aacctttctt	caagggcagg	acttgattcg	ccggcacaaat	gtggcattct	tcagctcgaa	780
cttcttctct	acggcgatat	gtcccgacga	atcatgtcgc	ttgtatcgga	actgtacctc	840
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gtcgctatgc	cacatgatag	tcgatagagt	cgccaatgta	cgggtatacc	ggtgagtata	960
ggtgtagccg	atacgatgac	ctgtccaaag	tggcagacaa	atatgccaag	aggtatgcgg	1020
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gatgtaagcg	atgtatgggg	aataggggcg	agactatctc	gcaagcttac	tattatggta	1140
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aactatcagc	tatttgcaac	tatttatagg	actttttattg	aagtcttttg	ccgcagagct	2340
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caacagtctc	aaaatgtgaa	gacgctcgga	atcgggtcaat	gtttcgacac	gattactgat	2520
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atgagatcaa	attgacgagg	acaaaaaacg	agatggatgc	tcgtccagaa	tcttgcgagc	2760
tgacagagag	gaatttatgg	tcaatgggtt	ccggatgctt	ctctccgaac	catcgctcgc	2820
gaatcgggag	tagcccggtg	gcataatatac	aactacttcg	agcacaagga	cagcctcttc	2880
agggctgtgc	tcaacctctc	ttggatgaat	tcgggcggat	aatgggaggt	cacaacagtg	2940
gcaccattat	ggacg					2955

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 861 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

gggtatcgga	ctctgtagca	tcaatctcgg	agaagtagac	gaagaaaaag	ggattatcaa	60
aaggctttgc	aagagtatgc	cacggcatac	aaactgatga	acagttgtcc	gatcgatggc	120
actggctgaa	ttcctgtatc	ccgatggacg	tatcaatctc	aaacaaggta	acgaaaggct	180
ctaccagcat	ttcattcttt	ggccgaaggg	actgcgaaag	aaattaattc	gacttcacat	240
ctgatgaaat	atacaatctt	caatacyaga	atctcgagcg	taaaaaagaa	tacaacaagc	300
cctcgaagca	ttctgtctga	gcaagacgtt	gagcgacagc	atgccattgc	gtacaaggtc	360
agcagcatac	aagaaacgcg	attcaactac	gacgaaacaa	gtcccaaaaa	gagcttgaag	420
aaatacagca	agtaagcaag	gaaaacaaga	gaaatcgaag	tttatcctct	tgagcactct	480
ttttgccctt	tcatctcgat	tctttttgatt	tctgttctga	catatgcata	ccgtcaggga	540
agaagcataa	caagctgatc	aaagagacgg	ataaaacttcg	ctccggcttt	tcaccgggat	600
tacacacgaa	tttcgtacgc	ctatcacccg	catacaagtt	tgaatgagaa	aatgagttca	660
agtctctgac	tccaagcatc	ggacagaccg	agctgcacaa	gataatagac	agacagagta	720
gccatatgct	gaattggtga	accagctgth	ggatatattgc	aagatcagaa	gcgagtatcc	780
acgccgaatg	gcgcatggcg	acatcgctct	ttcgtacaga	tctcatcgat	cgtgcacata	840
cgcacaggct	caagacatac	c				861

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4324 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

aggtaaatgtc	tataaatctca	aattctacca	atccactcgg	cactttgatg	aaaccaaatac	60
tccgattttt	ttaccatca	gtccctgtgc	gatgggtgat	tgacagagat	tttgttctct	120
ttgaggttg	cttccgaatc	ggaaacgggg	tataggccat	cacgacacct	gtctttacgt	180
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gatacagcat	tggcgatcag	cccccttagc	tgggcaatct	tcgtttcgag	gattcctggg	300
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tatctgccga	gaaatctcgg	gtcgtgtgac	gcttcaagtt	cagccaattc	ggccaaaatt	420
ttatcgtacc	cttcctgtgt	atataattgt	atgccatact	gtcttgatg	taacgttgg	480
tgaaaaaaa	tttttcttcg	ggctgcacct	gacagccatt	ctcgtccaaa	gagaaaaaaa	540
agcccgaag	atacccatat	atatggaatg	tctccggaac	tctctacttt	tctttaagtc	600
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ttggagcaaa	aagaaaggag	acagctgctt	cctaaggctt	gcttcgcctt	tcgcgcagaa	960
tggtgtaggg	cgagacgggt	agtgcaccac	cgtggtctgt	tcgaacggga	tgattcctcc	1020
gtcagagtaca	tttctaccgt	aaggccatag	cgctcttcga	tcagttcggg	atccgaaggt	1080
attcgggctg	ttcaggatcg	agggggagcg	agccggtcag	caaaggatgc	cgagcgattc	1140
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cagcaggagc	aagatgctga	taatgctttc	cgatttgccg	aagtgaagga	gtcttttcac	2220
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tccattacag	agctttctgc	cggcaactcg	ctgctgaaac	gaccggcacg	ccgcgtgata	3060
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accggaggcc	tcgcgcgttg	cttagggcga	tgaggaatac	tttcggactg	agcatcogat	3240
ggcatcgacc	acaaaagtcg	atttggtctg	atccagcagc	tccccatagc	ctcatctttt	3300
agaaaagcgg	caaccggata	gacctttacc	cgggattgat	atcctgcaga	cgatcggcca	3360
acacctctac	tttagaccgg	cgacgggtact	gtgcagggtc	atgatctgcc	tgttgatatt	3420
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agccgcattg	cgttgtgttc	ggcataggtg	tgggcaaaac	ggtgacggcc	ggagaagtcc	3720

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gaatccgtct	gcaaattggac	attcaggatc	cacggatgga	aaagtctccc	atcgcaaact	3900
tcaccgtcgg	atcggcctgc	agagcatccc	ctcacgcaag	cgacggatat	agagaccggc	3960
tatctgcggt	attcatcgga	ttttcccgac	tcctcctcca	cgatggatgc	gataatggta	4020
cttggatcgg	cgtcagcccc	aatgagtcgg	ccagactccg	tcgctctctg	tccaatagcg	4080
gtcgtagtat	ctctttcagc	ctcagaacca	agtccttggc	ctaagtgtccc	aatccacttc	4140
gtatgtttcg	ggcagaaaaa	ggctgggatg	gagtggtgat	cgaatcccag	cgaatcgcag	4200
aaagcggagt	cggcaacagg	gaagaaagct	cttcgggctt	catcatcagt	ttgcccgtca	4260
tcctccgatc	agatcctcct	gtgtgcggac	gtggcggagg	tggaagcgta	caccgactgt	4320
tttc						4324

(2) INFORMATION FOR SEQ ID NO:1086

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2333 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

gagccgacac	gagagaagca	tctccctctt	cgggcgtatt	atctcctatg	cgctcccgcc	60
atccaccttg	tccacgaaag	catacaacttc	tactttctgt	tcagaatttc	atccgtggcg	120
acggcagtg	aaggcaacga	tagctcctag	taaagcgatc	gccatggatc	gtgtaaacgg	180
catctgccaa	cgatgcgaca	ccacaagagt	tcgttcgtca	tccgatgctt	caacctcaac	240
ttcctgggtg	aaggctgaaa	caggcgagct	tcggcatccc	attccatata	cggaaggaaa	300
tttgacacatg	tcgatccaag	cgacggggga	taccattcgg	ctgaaatagg	gaataggccg	360
gatggctgca	tccacagcta	agtccatcga	gaacagggag	aggtctcgga	gggtttcccc	420
gtaacagcgg	aaacaaataa	gcatagtcag	catagttgct	tatccaatag	tactgaggca	480
gtcttccatc	ccggacacga	aataaccaca	gttgagctga	ggagcggcca	gtgtccacaa	540
ccatccgaat	atgtagctgt	agtcacttct	tccgcttcga	tagctttgtc	gtatagcgat	600
acaactttcc	tgtacctgct	ccggcaaaac	gcaggataca	gatgcgggat	tcaatgtatg	660
cagcataaaa	acctgcaagc	gattgggtgaa	tcattccagag	ctttcatact	cggtgcaccg	720
actatctgta	tctgtccttt	gctgtgccga	aagctaacat	ggagagcaaa	cacagcttta	780
agaggtagac	aactgattat	ttcctttcat	ccgattgttt	ttctttttta	tccgccaatg	840
attttattcg	tgagagcgaa	tggaagaag	gaagagcacg	aggatgcccg	gctgacagag	900
catcagatatt	ccattgtctt	ggcaaagacg	agttcttgag	cgacgtacaa	tccgaagagt	960
tcagcgtagc	actcgatcct	cccactcctt	actgccatga	cggatgtaaa	tgatcttgtc	1020
cccgaattgt	tcacggagtt	catgtcatga	gtattgacta	ctgtggtaat	accatgcttt	1080
gtgtaagact	atgtataaga	tcgtctatta	cgagcgaagt	cttcggacca	aaccggagtt	1140
aggctcgtca	caaaagagat	acttcggccc	caaagcatcg	pacggggcaat	ggcagcccgt	1200
ttcatcatac	cgccactaat	ttcgcgggat	acttatgtct	ggcatcggaa	agccccaccc	1260
gatgcaatag	atactagccc	tctctcgacg	gactgcgggc	ttatcgctcg	aaaacatatt	1320
catgggaaca	taacgtttct	catgacagtc	atactgtcga	agagcgcaga	acctgaaaaa	1380
gcataccgac	ttcgcgccgc	agaattttca	gctcactctc	atcataatcg	taatatctcg	1440
accatcatac	aatacctctc	ccgatgtagg	gcaataagcc	cgatgatgca	cttcagcagg	1500
acggctcttac	ccgctccgcy	cgtccgatga	tcagattggg	tttgcccgtc	tcgaatgtcg	1560
ccgagatatg	ttgagtactt	tcttgtcttc	aaactgctta	ctgacttctc	tgacttcatc	1620
ataatacgtt	agtataacat	ttacgcaagc	aataaattcg	tgaggataaa	tccgccacaa	1680
gcaccaatat	actgcaactga	accacagcgt	tggtattgct	ttccccacct	gcaatgcccc	1740
acctttcacc	gtatagccgt	agtaccggcc	acgctcgata	tgatgaaagc	ataggccacc	1800
gacttgataa	tgggtaaaac	acattataag	gggaaaagaa	aagctgcaaa	ccgtactcaa	1860
agcgctccga	ggcaaatctg	gcaccaacga	acaggccaga	taaccaccga	catacccggtg	1920

gacatgctga	ttatactcag	aaccggaacg	aacagcatga	tccgatgatt	ttaggcagga	1980
tcagataatt	ggccgagttc	acacccatcc	ctccatagca	tcgatctgct	cagtcacacg	2040
catggttccc	aattcggagc	aatactcgac	cccaccttac	cggccagaat	gagacacata	2100
accgtggaga	aaactccaac	agaatgatct	cacgtgtgga	ataacctatc	gtaaaggcgg	2160
aatgagcgga	gaggtcatat	tcagagatag	ctggatagtg	ataacgctcc	gatgaagaac	2220
gaaatgataa	ttacgatcca	aaccgaatcc	actcgagctt	gtctatctcc	ttaatcaatt	2280
ccctgaatga	catcctccac	ctgtaggcag	agagaatgtc	cgctggggat	cct	2333

(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 999 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

aaaagattgg	caggagtttt	tggtaaccaa	tgggttgctc	cttttgaaat	cacatggcaa	60
atggcggtga	aaaccttttc	ggaaatgcga	gctcaattag	cgcagaccgg	atgggcgtgt	120
gtacggtatc	cggacaaatg	caaagaccgt	attgttctct	gccattgata	gattgaatca	180
tttggataag	gcaaagggac	aacatttgta	tctaattggag	atggcattac	aaacctgatt	240
gagatgactt	gcgtgcagat	ctgggagggt	tcatgcatac	aaataaaagga	gattttctga	300
tagaagaatt	gcaccactgt	ccgtaacacc	ggccacggct	cttatacaag	ttctgtagga	360
agagacctct	tggtgagaat	tcgcttcgac	aaagctctga	tgctaaaaat	caagcattag	420
cgacaagaga	atacagcgaa	cggataagat	gaatatgaac	ttcttccttg	acataacatc	480
tgttggtgtc	gcaaatcttt	tgtttataaa	gatggattaa	atthaggaac	aaagtactta	540
aacatatcac	tgacgacgag	aaaaagagga	gggtaaagct	attcttagag	caactcgaat	600
aatgaatgac	tacgcaaacc	aagctcgtaa	tgcagttgtg	gtgagccaga	aaaagtattg	660
atcgtttttg	atgatagact	gagcagaaaag	cctgtcgtta	ctataccgta	ggtgaaaagg	720
agcaggcaaa	cattaaaaag	aacttgatca	gtaccaagta	aaatattttg	taggggatga	780
tgctcagatt	atagcgtagc	cgatgcttat	cgtgatgcga	tgaattacct	tgaaaggcaa	840
cacttgtcga	ttttgcagag	ggcgaaagag	ataatgactt	ttcagaagcc	ttcgagtgcg	900
aggaaaaaga	acctcaagag	aaaaaatcta	aaaagggaaa	gacaaggcca	cttctgctca	960
gaatctcttt	gcagaacacc	gatgatcaat	aaagaatcg			999

(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

tacgcagttg	gttttcaccc	gtgattcggc	acctgccgaa	ctatgcgacg	cgccgaagac	60
ttgggacgtg	agtgggtgat	ccgtgccacg	ggcaccgtat	ggagcgctcc	agcaaaaatc	120
cgaatatccc	caccggcgat	atagagaagc	agtcggagaa	atggatgtgc	tgaaccgctc	180
cgaagtgcg	cctttcccat	cgaagacgag	accgacggag	gcgatgacct	ccgcatgaaa	240
tatcgtacct	cgacctgcgc	cgccactgcg	tgcgctccaa	tatggaactg	cgccccggat	300
ggctctggag	gtgaggaagt	atctcgacgg	cgagggattc	ctcaagtaga	gacccccatg	360
ctgatcaagt	ccacgcccga	gggtgcccgc	gatttgtcgt	accctctcgg	atgaatcccg	420
gccagttcta	cgctctcccc	cgtcgcctca	gaccttcaag	cagctactga	tggttaagcgg	480
cttcgatcgc	atttccagat	cgtgaagtgc	ttccgcgacg	aagaccnccg	cgccgaccgc	540
agcctgagtt	tacgcagatc	gactggcaan	atgagctttc	gtggagcaga	agatgtgctg	600
tccaccttcg	aaggatatgg	caagcacctc	ttccgtacat	ccgtcacgtg	gagatttcgg	660
aagccttccc	c					671

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

gccggcatgt	aacagaaaaag	ctgttgata	aactggcaaa	gtattcattt	tctataattc	60
atgtcaggat	atcccaagag	aaaaggcaag	actctatgag	atcaaataatg	tagaaacaga	120
acatggcgca	atagtttgtt	gtactggcaa	tcaaagaaaa	tctcttactg	gaaacagggt	180
tggtatggtga	aggtctatgt	ttggctttca	gaagattggg	gacttcctaa	tggctgatgc	240
attttcaaaa	gcaaaatgaa	agatagtgcg	aaagtagatt	ttgtcataga	gaagcagaat	300
gtcagcaata	tcccctgtac	aagcgttttc	tcgtagccct	atttcggagt	ggtcccttat	360
gccagagttt	ttggatagg	atttacttgt	accagggaga	cgttggttaga	tattttgttg	420
gaaagtctgc	attatcgatc	agaaacaata	ggttggtatt	cagttggatg	gtaaaagaac	480
aggttttctc	ttaaggatat	tgcgtgattt	tataaacata	ttgccggaag	atgtatttct	540
atggctcaca	gtaggttgat	gaatgcatca	ttggttaata	gagataagaa	tggaacaacg	600
ctgtgaattc	tatatatgac	tccttcttat	ctagtaagta	gatgattttc	ttgaaattga	660
aatcacagag	aataacaatc	ggaaattcta	atacttctag	gatggatgtg	tgtatcaacg	720
catcctttta	tcanggtaga	gccgttgaga	aaattggtgt	atttggttga	taaggcacca	780
gagtttacca	gaagcttacg	tttggttgct	tcatgccatg	atatgtatgt	ggg	833

(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1903 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

cgccgacagc	aacgacgaac	tgatgaatct	ctcccgggag	ataatgccca	actgacccgt	60
ctcagtacgg	atatagccct	gagcgaaccc	ttgttcgtcg	catccgaacc	gtatgggaga	120
gcgatgagaa	agaaaagctc	tcggatgaga	aaaacgcctt	ctgtataatt	gctatcgggg	180
ctttgtcgat	agcggacact	actccccaca	gagaaaaaag	accggctgcg	taccctgtcc	240
gaagaatgag	tatggcctca	ttgacattcg	gacagaatgt	gctcaaggac	gagaacgcta	300
caaaactccac	ctcagcgatc	cggcgggctgt	ggccgggagtg	cccagacggc	tctcgtcttc	360
gcttcggaga	aagcccggcg	aaagggctat	acgagggttg	gcttttcgac	ctttctgctc	420
cgagctactt	tgtttttatg	agcattgtcc	cgatgggaac	ctgcgcgggc	agatgtatga	480
agcgaataatg	gtgtcggctt	cgtagacaat	gagtataaca	acgaagctct	gatccgtaga	540
tggtaaacgg	ccgtctcgag	gaggcacaac	tcttggttta	cgatacctcg	cccactttgc	600
tcttcatgac	aggatggcca	agaaccccaa	ggcagttcaag	aactactgga	caaactactg	660
gatgcataca	agcccaaaagc	gacagagaat	tggagatgat	ccgcaaatgg	gcttgccgac	720
aagacatccg	aagtcataac	ttcacgatac	aacctatggga	ttgggcatac	ttctcggaac	780
agtaaaacag	gccactacg	atctggacga	tgagatgatg	cgcccgtact	tcgattaggg	840
cgagtcacac	gtggtatctt	cggcttggcc	aaccgactgt	acgacttcat	ttctccgaac	900
ggacggatgt	gccggtctat	catccggatg	taaggtgtac	gaagtatcgg	acgaagacgg	960
ctcttatatc	ggtctgctct	cacggatttc	tttccacgcg	aaggcaagca	aacggagcat	1020
ggatgaacac	ctccgggacc	agtccgaaca	tcagcaccgc	cacatcatca	tcgtgatgac	1080
ttcacccctc	cttcggcgga	caaaccctcg	ctcctgacag	caggtgagtg	gagactttcc	1140
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cggcacctcg	gtagcccgtg	acttctggaa	cttcccagcc	aaataatgga	aaactggctg	1260
acagagaaag	atttctcgac	acctttgccc	gccattatat	aacggacgaa	cctatgccta	1320
ccgattgggtg	gaaaaactcc	tctcggcacg	aaattacctc	gcagcaagcg	gtcatgccgt	1380
cagctcagct	tcggctatct	cgacatggca	tggcatggat	ttctgtctcg	gtggatgaca	1440
aattagacat	caaggctttt	gaagaggctg	ttggtcaaaa	gctcttattc	tacctccttc	1500
gcccccgaa	gccgtgatgg	cacggccttc	ggtcatatat	tctcgggagg	ctatgcagcc	1560
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ccctgctgaa	gcgtaccggc	ttggttagcc	tcattttatgc	ggtctcaata	ccacgtaaaa	1800
cgtaagcccc	aaacgacacg	tcgctttcgg	gcttacctgg	ttttantcct	ggttttggaa	1860
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(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4544 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

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aagcactcta	ccgggcatat	cgctggagga	aagcgacaga	atgggcgtat	ggcagaagaa	360
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ttccaaagac	aagtccttgc	tgacattcgc	gagaagctca	aagtgtctgc	gggtgtgaaa	540
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tatcgccatc	aaactatttcg	gtccggatct	gaaccggtgt	ttgcaatcgg	gaatcagatc	660
aagacttccc	ttcacgatgt	gaagggtgg	cggatctgaa	tgtggagcaa	caggtggagc	720
gaccgcaact	caagacgtac	cgaagcgtga	gatgtctggc	aaatacggac	tcacaccggc	780
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(2) INFORMATION FOR SEQ ID NO:1092

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2932 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2932

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

tggggcatca	ggctctggca	gagtttttctg	gcgggccgact	acggcgcaatg	aacatccttt	60
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ccgaacgatg	ccgttgctcg	gcgttacata	gctgggtggt	ggaggatacc	gacttgccgg	180
actgcctgat	ccccacgctt	ggagcgatga	tgacggcgta	ttgatggcca	tgcgccacaa	240
gctacgccac	actatggtgt	tcagttccac	cccgaagca	ttatatccga	ttgcgagaac	300
gactgatccg	gaactggctg	gacatagcga	cacaaatccg	aaaacataac	cctatcacat	360
aatccgaaaa	atgaagtatt	tccaagaggc	agtattgccc	tgaccgtctg	tgacaaaacg	420
ggcaaaatca	tcgatatgaa	caacagtcct	gtcaggtaaa	cctcaagcca	ggtcaggagc	480
tgatcggtc	aatgtattgg	actgtcatcc	cgaaccggct	cgctccatgc	tcgaagagag	540
atgcgtcagg	agcgaagca	cgtctatacg	atagagaaga	atgggcgaag	aagctgatct	600
atcagatccc	ctggtatgaa	aagggggaat	atatgggttc	ttggagctgt	cgatggtgat	660
ccctttcgaa	atggaacaca	agattctaca	ccgaagccgg	caaattgattg	agactcctta	720
tatataggaa	agctcgttcc	tttccgacga	aagccaagag	ggtgttgcaa	cttttgtctt	780
gcaaaccctc	ttcttttcc	atggatcatg	accacaggct	aaacatctct	gctaaatagc	840
aggcattaag	attctaccga	tatatattag	aatagaagg	ccgcctatac	atatcgacaa	900
ctcgagaagg	actcctccga	aaggtttgct	agataaagat	tttgtaaagc	ttacaaagg	960
caaaacccaa	gtatatagtt	ggtttcatca	aagtatatag	tttggttcga	ccaaagtata	1020
tagttcggtt	gaccaaacta	tatagtttag	ttcaacccaa	ctatatagtt	tagtttgagg	1080
tcgttttagc	tcttttttcc	gaaaatataa	gtagctataa	atgagagatt	aaaattaagc	1140
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tataaccgagc	gatctggcgt	atggagatcg	tgggtgccggc	aacatatcaa	accgggtagt	1980
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caaatgaaaa	aaacaattgc	aatatcgctt	cagccctctt	ggcttttagga	gccgtcggct	2880
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(2) INFORMATION FOR SEQ ID NO:1093

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5742 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

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atagaaaaaa	gctgacgaat	agtgggtgcg	ggattgtgca	ccgcttcata	gagccggctg	180
gcaaaggaat	ccgtatgaat	gccacggcgt	ccatactgca	tacgcggagc	aatttccttc	240
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cactttttcc	gccaaatcct	cgccaatcg	agcgattttc	cccccttttc	cttttttcgc	2640
cggagggttca	tgcttatact	gctccgatcg	ataacttttt	tggggcgaa	ccttttgaga	2700
aaaagaaaagc	ctgaattgat	atagtctgta	tctatgaagc	cataaaacat	tcgatgattt	2760
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aatcactctt	tcataaaaacg	cccccaacgg	atgacaacta	ttggtaggca	ggtgagtgc	2880
ctcaataaac	gtataatttc	ctcagaccgt	atattttttg	atataatagg	cggcaattct	2940
tacaattgtc	gcccataata	tttttatacg	agcctgtccc	ctcccccgaa	acgaccgaac	3000
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gccctgattg gcgaaacctt ggttctttga taaagtaagg ga

5700
5742

(2) INFORMATION FOR SEQ ID NO:1094

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

aggtaatctt	cccgtgcccc	tacacttgcg	taatgcccct	accggtctgt	ggccgacctt	60
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atctgcccga	caaagctgct	aacacctttt	ctggacacct	caaatgcaca	cagtgcata	180
agccaagctg	ggagaaggat	gaagcgatgg	tggaagaggg	aaaaatccca	aaaggataca	240
gcagataatg	actcttcttt	ccgtaccgtc	tctatgccga	cagatatttt	ctcctcaaac	300
aattcgacat	cgaccagaca	ggttggtgca	tgcgctggg	tacgacggcg	tcctgctggg	360
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gatcgaatag	tgatcgcttc	gggagacatt	ttggattcat	cgctcgaagc	cttatcgga	600
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aggataacca	gctgctcccc	atacttgcca	acggtacgac	gagccagtcg	ataaccgttt	1080
cggccaaaac	atcagccaac	tcggtatcat	tcaggggaga	tctcttacct	cggagtcgat	1140
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acttcttttt	tgtccgcctc	gataccggca	cggaaagcga	atcgctccaga	atctcctcca	1980
aatcacgatg	caggtagcca	tcttcttctt	gttaccaatg	atatagggag	caagc	2035

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

tgctttgcag	ctccacaaag	cgattataag	agacaagatg	tggaactcg	atcgacaaga	60
ataggtgatg	tattgaagat	aaaaagcttt	caaattctcg	atcttgacag	atgaaacagg	120
atcaggatgg	tcatgacctc	actgtccaca	tcttaaactt	tctattcctg	cgttttttgt	180
ctgcctcttc	gagggttttt	tcttgattgc	ttcatcaaaa	agcttgagga	aatcatctat	240
gatgcaaaaa	catcaactat	atgtgtcttc	ataaagtagc	gttttggttcg	ttcgatctta	300
ttgattatca	actgctaaga	tacaaataat	tcgctacttt	ttcagcataa	tgcccacggt	360
ctttgggcgt	ttaaccctaa	tcaaaaaaca	aatcattggg	gttttcttac	gtcgaactga	420
cgttaagaag	agggttactg	caaattcttc	gtaaaagagt	caggcgtacc	tttatgctta	480
taacataaaa	agaaagtgtg	cctcaatccg	cacg			514

(2) INFORMATION FOR SEQ ID NO:1096

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3444 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

gagctcggta	ccctgccacg	aacgcgcgatg	tagcgaggct	tattagccga	gccaaataaag	60
tgagcataca	aggaagctct	acttccaaaa	cctcatgtct	tcttccgtgc	tcttgcgaaac	120
agtcagagtt	tgcttgccat	cgaatgtgct	tcttccacgt	atgtgatctg	tggcagggtca	180
agttgctcgg	caatctaggt	cctacctgag	cggtatcacc	gtcgatagct	tgacgaccgg	240
cgatatcaga	tcgtggtcga	tctttctcaa	agcttgagag	agtgtgtaac	ttgtgccaat	300
gtgtcggctc	caccgaactc	acgatcgctg	acaaggatgg	catatctgca	cccatggcat	360
atgcttcgcg	caggatagct	tctgcctgtg	gcgtcccacg	gtgatcacag	ttacgtgagc	420
attgtgtgtg	tccttgaagc	gagagcctgt	tccaaagctc	ccttgctcatc	ggggttcatg	480
atactgggca	accgtcacga	atgagcgtgc	cttttacagg	atccaatttg	atttcggtat	540
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ctttcaagca	aattcacggg	ctgtcaagca	cttcacgtgc	tcggctctgt	acgataaccgc	3420
cttctttgaa	tcaacttccg	atcc				3444

(2) INFORMATION FOR SEQ ID NO:1097

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

tacgaattcg agctcgggtac ccgggggatag cctgtaccgg cagagtatag tgtgggagat

aagatcctct	cccattgttc	gggcgaatca	tatttgagag	tttcgtcttc	ccctttctta	120
gggaatccac	atccctcagg	gatctcccca	agacccttaa	gggatccctc	ccgagacccc	180
ttaggggtcc	cacccggact	cctcagggat	cccataggag	actccccggg	ggtctcgaca	240
gggaccctcg	ggggtcttca	cggactgaca	acttttcatt	atcatgttaa	cccttaacaa	300
ttattcctat	gcagaactta	atccgtcaag	agccgggtca	tgagatcggc	aagcatggag	360
agaccgaagc	atcgggtcacg	gttcacaaca	tttattgtac	ttttaggcct	catttagaac	420
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cgcgtacggg	acagtcgtgc	cgaaactcttg	gaggagaccg	atctgtccct	tccggtgagc	900
cttcgggtac	tgaagtgcgg	tttacgcccg	agacagtctc	ttccgcaact	atcgggtatca	960
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acccatacgc	agcagtagcg	cgatgagttc	tacagcttgg	gaacggtcag	aatacgacac	1200
aaggggggac	gcattctgag	gctttcgtga	ggccgtagcc	cgtagcatca	aagagttcta	1260
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caaaaaacaa	accttcggag	ccacccccaa	cgcggacgca	agaaacagga	gtccgatatg	2040
cctaagccgg	tgacggatta	tactgctata	gtgaggccga	gaagcaagcc	gcgctgaagc	2100
agctgggaag	aaagccgatg	tcacgcgctt	caaaggattg	ggagaaatct	ctccgggcaa	2160
ttcaaggatt	tgatcgacga	ggagaatatc	cgtctcgagc	cggtcgcctc	aagcgcgagg	2220
ataagatcaa	ggaactgctc	actttctata	tggaagaagt	acgagcgagc	gtcaggagtt	2280
tatcattgac	aacttagtcg	tggtgaggat	gtgctttaag	cgatcctccc	gatttctcaa	2340
gaatcaaat	tgaaaaagaat	atcgccctct	ttgcgggttc	gttcgaccct	ttcacacgcg	2400
gcacgcccgc	atcgctgaac	gctcgctggc	catattcgat	gaggtgatca	cgctatcggc	2460
atcaatgaac	agaagcgcac	gctcttctcc	gcagaacggg	acaagagcag	atagcccgcg	2520
actatgcttc	ccgacctgct	atcggggtat	tacttatagt	gggcttacgg	tcgatct	2577

(2) INFORMATION FOR SEQ ID NO:1098

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2257 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098.

atcgaacagc tccgttggga aaggccctgc tccgacgcgc gtgcaatagc cttgaatatc

ccgtacacat	cgccacatt	gcgaggagct	actcccaacc	ggtacaacag	ccggcacata	120
tcgtattgct	actggtcacg	aacgggtaga	accgaagtca	atgtccaaga	gcgaaccttg	180
ggctccttcg	gccaaacctt	cttgccggac	aaaagggcac	cattgatcag	aaattcactg	240
tccacaattc	aaacttgccg	agatattttg	tagcctccat	ccagcggttc	tccaatccgc	300
cagcttgctc	gtaggatagt	tcaggggaatt	cagtatgcga	agagacgctc	cttgggccacc	360
gaataggcct	cttcgaagcc	gtgttccaaa	tcccgacacg	caagccggtt	cggctcactt	420
tgtccgtata	tgtggggccg	accctttgcc	tgtggttcg	atcttgccgc	ttcccttagc	480
catttcgttg	cagcatccaa	cagccgatgc	gtaggcataa	tgaggtgggc	cttgccgcgaa	540
tcacgagacg	cttggtcaga	tcgtgaccgc	tgccggcaag	agcttcgggt	cttccttgaa	600
aagcagggga	tcgagtacca	ctccattgcc	tatgacatcg	ttttctcacc	ctggaagatt	660
cccgaaggaa	tggaacgaag	cacgtattct	ccccgttgaa	ctcaagcgta	tgtccggcat	720
tggggccacc	ttgaagcgag	cgacaatatc	gtagtgcgga	gtcagttacat	ccactatttt	780
tcctttcctt	catcgcccca	ttgcaggccg	agaagtacat	ccactttttc	cattcggtatc	840
aatgttatat	gtctgtgtta	ttattttttc	ttcttgaggag	cgctttgtcc	gccgcctttt	900
tgagggccga	ctgcttcttc	ctgcatttgt	ccatatacca	tagaggcaaa	tgatggcctg	960
cctataagag	aagcgtgggt	tctgagatcc	ttgtcggcca	gtatcgactt	cacatttcgt	1020
cggtagtagt	agaaaattgt	gcacattcgg	tacagaaaag	cagcggacac	tgctctgcaa	1080
tgaagccatc	aagtactgat	atttggtttc	gggagaaggc	aaacgcaaac	gatcccgcag	1140
cgttcgagca	aggttaagggt	attatagacc	gtagaagact	tacaggcaag	ccattctcgc	1200
gagttagatc	gaacaagtcg	tcggggtgaa	tatcttcttc	agattatatg	cgacttcaag	1260
aatgctgtat	cgttgggggt	atgacgcaag	ccgttctccg	acacatatgc	acgcaatctt	1320
gaggaagatc	ttccagtgat	gtgactatca	tctttacaac	tgccatggca	cttcgcacagg	1380
agctacaaat	atagttcttt	tgaagaagtt	ggctcgcgagg	aacccgattg	gtttttatct	1440
tttcgatcca	tctctgcccg	cagagagcaa	gcagtgggcg	aatcctcctt	gagaatcgga	1500
gcaagcgaat	cgaacgcacac	gtaatctgta	tcggcccat	ggcataggga	gcgatctcgt	1560
actcattgag	aggaaagtaa	tacctcgctc	cgagattccg	aaattgtccg	taggataaga	1620
tcgccaaggg	taccatagcc	catttcgttg	aggctttcca	aagaagaacc	ccttggtctg	1680
ccattaactg	cttcagagc	aaatcgggtg	gagcacatct	ttgccctgcg	cgatgatgtc	1740
tttcaaaaaga	atctgcttgc	cggtcgcaaa	tcgaggttga	gatatgcaac	gtcgccataa	1800
ccatgactac	cgccatgtat	ttgaaagctt	cgatctcata	gaccaagaga	ctgttttgcc	1860
tgaaacgacc	ttgcccgtta	tgtgatcgac	ataggcataa	agccccaagt	cggctctgtaa	1920
tcgggcttga	gcgcaagctc	ctccttcagc	aaaggttcca	atccgacaaa	taggtggaat	1980
cgctggcagc	agcataagcc	gacatagccc	ggaaggcgac	atggatgcat	acgccgggccc	2040
gaacagagca	ttcaggattt	ccgcctcacc	gaatcggcga	tagcgtgagg	aatgctgtcc	2100
gatggatttc	aaacaggatt	ttaatatcgt	tgcaaggcat	agtggagtcg	cctaacagtg	2160
agtgcaacgc	tccatggaaa	tactatcgaa	aacgatccgt	tcgcttggtt	gttcctctct	2220
ctcttacaag	atgaaatctg	cagcagggta	ccgacta			2257

(2) INFORMATION FOR SEQ ID NO:1099

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1177 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1177

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

gagctcggtta	ccctttcaac	ttcgttccct	actacgccaa	tcttttcagc	cgctcttcgt	60
cttcatatcg	gttatattct	ttacgtcgaa	gctggctgga	agtccgagat	catcgcgatg	120
ctttcggccg	gagtcagttt	caagcgggtg	tggtgcccta	tatgttgctg	gcaacgggtg	180
ttgccatact	gactttctgc	tcaatagttt	cgttatccca	ccgggcaatg	ctacacgaat	240
tgatttcaga	acaaatacat	caagaacaag	aaggtagact	atgccgagag	cgtagctcgc	300
aagtgaagaa	aggggtcttt	gccttttttc	gatcgtagac	cgagccatgc	gaaccgggta	360

ccagttcagc	ctggaagagt	tcaagggcaa	gcgctcgtct	cccgtctgac	agcggatag	420
atccaatacg	actcgcttta	tactggcgca	ttttcaacta	caggatcagg	cacttcggta	480
agtataaaga	acggctcgaga	gcggtagcga	gatggacacg	gtaatagccg	tccgcccggg	540
gacttcctcg	tggcagagga	tgatgtggag	acgatgacga	ctaccgactg	catacctata	600
tatcgcacga	gaagcaaagg	ggcgtgggca	acgtcaactc	tttgagatcg	aactgcacaa	660
acgctatgca	gccatcttct	ctgccttatt	ctcaccatta	tcggtgcttc	gctctcttca	720
cgcaaagtaa	aaggaggatg	gggatcaata	tcgctatcgg	tctggggctt	agctttgect	780
atatctgttt	atgaccgttg	ccggtacatt	tgccatcagc	ggatctttgc	ctcgtttatg	840
gcagcttggt	tgccctaactt	cgtgtttacg	gtcattgccg	ttccctttat	aaaaaagctc	900
cgcgataggc	agacttccgg	atgtaacgat	accacaacta	tgaaagagaa	aatacagaag	960
aatatcctca	taaagaacaa	cgtgccactt	tcgattacga	gattttggac	gtttacacgg	1020
cgggcattga	ttggtcggta	ccgagatcaa	atcgctccga	ctgggcaaag	gcggtttggt	1080
gatacctatt	gctacttcca	tcggggagag	ctgtgggtga	agaatattac	atagccgaat	1140
actctatgca	cctatacaac	catgtgctcg	cgcgcac			1177

(2) INFORMATION FOR SEQ ID NO:1100

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1047 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1047

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

cttgccctcg	aattcactaa	ccgaaataat	agccctttta	cttgcacccg	ctctcaatgg	60
tggcgatcat	ttcggccacg	aaattgaggt	ccctttttgt	aaagaccggt	acatatctga	120
gtcacatgtg	caccggccag	caaagcattg	agtgcggcct	caccatcatg	aatacctgtg	180
gaaagaagcg	atggattgcc	cgggcaccca	atgcactcac	gataccggca	tggcgaatcg	240
gtatcgatat	ttctcctgca	gaggtaaata	cgtctccggc	caccatctgt	acttgctgat	300
gtcgatgtcg	ggctgggtatg	agcgattgaa	aagcaccaca	ccctggctcc	tgccgcacgc	360
agcttatcga	cgagagatgg	gatattggca	aagatttgga	aagcttcacc	actacagggg	420
ttctgatggc	tttgatcaga	ggctgataat	atccacatac	atctgttcgg	ctttgttggc	480
atcgaagaag	gatcgggtatt	gagtcgcatc	acgttgattt	cgagagcgtc	ggctccggct	540
cttcgaactg	cttggcaaag	tccacccacg	aatcggagcg	gaagcagtga	tgctggctat	600
tacggggata	gccacctcgc	gcttcacttc	gcggaggagt	cgaggtggtt	ggagatctcg	660
ttgctctgta	cataggcatt	gatatatctg	ccgcctcagg	ataatccatc	ggggacatca	720
tttgggacat	ttctgctcga	tctgctcttc	gaacagtgat	ttcagtagca	tggcagcaac	780
acccctgctt	cgagatcttt	gatggttttg	aggttgccgg	tcagtcccga	actgctgcaa	840
caataggatt	tttcaggcgc	aagccggcga	actcagtggg	caatcgatca	tatctgttta	900
ttatgaatta	cgaaaaagac	cctgcaagcc	tcccgcgatc	ctctcgggca	tctctgttta	960
agacagacga	aaaaacgccc	cgacaacaag	gcttcccagt	gcctccggca	catatatgcg	1020
agatgcgggt	acacagaagg	tctatttc				1047

(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

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gctatcacca agcggttaaag tgggttaatcc aatgtaggagg taccaaattg gaaagggtgtg      60
ggtacctgca accagaattc ccggctacca attcccggac ctcaaagttg gaagacgaaa      120
gtggaaagtt taatatcgag aatcaggaag attaagaagg ggccagcttc gtccttgtcc      180
tcaccggcaa gggcttgtgc cggctcgctc ttgggagcgc gtgaacgagg ctctcgaaaa      240
agacgaatcg taaagggcta tgtgaagtgt cgtaccaagg gtggtatgat cgtcatgtat      300
tcggtatcga ggctttcctc ccgggatcac agatcgacgt gcgccattc gcgactacga      360
tgcattcggt gagaagacga tggagttcaa gatgtgaaaa tcaatcaaga atataagaat      420
gtagttgttt ccacaagggt gtcacgaag cagagctcga acaacagaag aaagaaatca      480
tcggcaagct gaaaaagggc aggtactcga aggtatcgtc aagaatatta cttcttacga      540
gtatttatcg acctcggtgg agtggatggt cttatccata tcaactgactt tcatggggtc      600
gtgtggctca tccggaagaa atcgtaacgc tggatcaaag atcaatgtcg ttatcctcga      660
ctttgatgaa gatcgcaagc gtatcgcttc ggactcaaac agctgatgcc tcatccttgg      720
gatgctctcg acagcagctt aaggtaggcg ataagggtgaa gggtaaagtt gtggtgatgg      780
cagatacggg gctttcgttg agattgcaca gggcggttag ggtcttatcc acgaagcgaa      840
atgtcatgga cacagcactt gcgttctgct caggacttcc tgatgtaggc gacgaagtgg      900
aagccgtgat cctgacgctc gaccgcgaag acgcaaaatg tcgctcggtc tgaagcaact      960
caagccggat ccttgggctg tatcgaaact cgtttccctg taggctctcg tcaccatgct      1020
cgtgttcgca cttcaccaat ttcggtgtat tcggtgagat cgaagagggc gtagatggct      1080
tatccatatt tccgaccttt cttggacgaa gaagatcaaa caccaccaga gtttacggaa      1140
gtagggtgctg atatcgaaat tcaggtaatc gagatcacaa ggaaaaccgt cgtctcagct      1200
tggtgcacaa acagttggaa gagaaccttg ggatgtattc gagacgggat tcaactgtagg      1260
atctatccac gaagaacggt aatcgaaagt atggacaagg gtgctgtcgt ttctctgcct      1320
tacgtgtgga aggttttgcc actccgaagc acatggtgaa ggaagatggc tccaggctgt      1380
actcgaagag aagttacctt tcaaggttat tgagttcaat aggatgccaa gcgaatcatt      1440
gtatctcata gccgtgtatt cgaagatgag agaaaatggc tcagcgtgaa gccaatgcag      1500
agcgtaaggc tgaagccaag cggctcagaa agaagctgct gccgaagctg ccaatcctgc      1560
acaggctgag agaaagccac tctcggagac ctcggcgagc tggccgcttt gaaagaaagc      1620
tttcagaaaa ctaaaaacta ctacggatca tacgcgcttt tgggcgatga tccactttat      1680
aagagaggct                                     1690

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(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2458 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

ggcttctatc	tcgatgccgc	gaagcgatga	gccggtatcc	gtagtgaaga	aggattgcct	60
gtaccgcaag	agaaaatggt	cacataaccc	tgttcgagaa	ttctatggca	tgccatttgt	120
tgtagaactc	ccctatcggc	tccatactac	ggccgtgagc	acttttggct	tcacccctac	180
cccctcaaga	gcagagtggag	agccaagctg	ttgattaccg	tggccagcat	acccatctga	240
tctccttgac	acggtcgaat	cccttggcgg	caccgctcac	tccgcggaag	atatgcctcc	300
tccgatgacg	atgccgatct	gtacgcccac	ggcacaagcc	tcctgatgtc	cgaagcataa	360
tcggccaacc	gattcgggtc	gatgccgtat	tgtgagcacc	catgagcgac	tcaccgctca	420
gtttgagcag	cactcgttta	ttgcagtcac	tattcttttc	tatcagtttg	ttacaaagaa	480
aagcatattt	ccatacccca	ttcgtcgata	gacgctgtcg	aatggctggt	ttcaactccaa	540
cgagagagca	tctcttcgcc	gagagcacgc	tttttccgga	tgtgctcccc	acctcgacga	600
tgaagggatt	gctttcgaaa	tcgcctcgca	cctcatcaaa	tcgcggtggt	tcattctccc	660
taccaggtct	attccgaagc	ctacctactg	tgcatattga	attccttctt	ggcattcctca	720
tagagcatct	catccagcga	atcacccaac	gcattccatgt	atgcaccagt	tcggctactt	780
tggacgagtg	agatcctcgg	ggttcagttc	gtaccattcg	agcagagcgt	tgttgcccag	840
caccattcat	agtcgtagta	tcggctatga	atttccttca	tcgctcattc	acctccgcaa	900
ggcttttgat	cttgcccttct	ttgatcaagg	agcaaggcgg	tggatctggt	gttgtggagc	960
gatcatgccca	cagatgtcca	ccagctgccg	tctccctcat	tgtgagtcgg	cttgagagca	1020
ctcagcacc	ctcatccgta	cggcaaggac	aatcttcaag	gcgtttgatg	atggaattcc	1080
gaaaaacttg	ttcagcccca	tctcatagaa	catcagcccc	ttgtccaggc	agaagaacgt	1140
atgcgcatac	catgatagac	ataggtttgt	ccctcatgcc	cagtatcttg	cgtagctttt	1200
tcagcttccg	actgccgcgc	atcatttgcc	ggcagtgaaa	ggactcaaga	gattgaagtt	1260
gatattgtcc	agcaatccgg	atctttacgc	ttatctctcg	ccggccactt	cttggcgtca	1320
cgatcgcccc	cacactgcgc	agattgatac	ccggtacca	atacgattcg	ttcggctctc	1380
tatgatataa	gagaagggga	aggccgagct	gtcaatatgg	ttacgtgtcg	acccatcacc	1440
aacgtgaaaa	ggccctattc	tggatggcca	aggatataag	agtcgctcgt	ggtcttcgag	1500
ccgcgctcca	cgatgcccta	tggatggggc	cgagcttgta	gaggtgattg	ctctggttag	1560
agccgctgcg	gcattgagga	aagagtatag	accggcaatg	agcaggctcg	acttgtgatc	1620
gacacggtat	atggcccggc	aaagacggca	caggcctcgc	cgttttgcct	tggcagttgg	1680
caaagaaaaa	cgaatcatgt	gcagagaaaa	ggtgccccaa	tgagtaccct	gccctacaaa	1740
acagtgcgaa	acggtagcac	catcgtaacg	ctgctgcccc	aacagagaat	gaaatcgcg	1800
cagacgacat	tgtgcctacc	gacacggggg	cctctttctt	gctattgata	ctgccgttgc	1860
aggatgcgag	gcaccggtga	tctcgggtata	atctccgata	caaacattct	catcgtattg	1920
catccgtgga	taaccacatg	agagcctatt	gctc'ccatat	cgaccggcgc	gactcggcat	1980
aagctcttgc	catagcagca	agcgattcgt	cagcaccttg	tcattgcctgt	acatggccat	2040
cagataggcg	gtctgggctg	caggtttgtca	gtgatcgtaa	cttcacgtcc	gccggtttcg	2100
ttcagcaggt	aacctccacg	ccgttgccga	aggaggtgga	ttccggttacg	gctatgtatc	2160
aatgttttgc	attcgggtat	aatcgcttat	tctgtaatga	gccaatagct	attgacatgg	2220
aagatgacga	cttcattccc	gacaatgcag	ttgtcaggcg	tgcgatattg	ataccctgag	2280
gcacgtggag	gcctcccggc	aacagtgaact	tcctcgcggtg	gatccgatcc	ggatctgtcc	2340
gctgaacatg	actgcagaca	acgattcgcg	tcaaagccat	cggccacctc	caccatcgtc	2400
catcggcgca	ctggcagtag	ttgccttcca	gcacggatat	ttcttcttcg	tcaaatgc	2458

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

aaggaaacta	atcctatcta	actctcaaaa	tcaactaaac	gatatgaaat	attgggtattg	60
aactgtggta	gttcatccgt	caaatataag	ctactcgaat	gcccacagga	gacgtatttg	120

ctcaggccgg	agtggaaaaa	ttaggcctcc	cggtcattt	ctcaaaactaa	ccatgccc	180
tggtgagaaa	gtggtgtgga	gaaagatatg	cccgaacata	cgatagccgt	agagttcatt	240
ctttcgtgct	caaagatgac	aaatacggat	gcatacaagag	ctatgaagaa	atcgtgcagt	300
agggcaccgt	ctcgttcatg	gaggtgagaa	gttcagtaat	agctggagat	cacaccggaa	360
gtaattgcca	aagtagaaga	atgtattcct	ttgctccact	tcacaatccg	gctaacctca	420
aaggcgctcg	agccatcgag	agttgctccc	cggtattcgt	cagggtgggtg	tattcgatac	480
agctttcttc	aaaccatgcc	ggaacatgtg	taccgatatg	ccttgccata	tgatatgtga	540
acaagcatgg	tgtacgtcgc	tatggattcc	acggcaccag	ccatcgcttg	tcagtgtccc	600
tgcttgtgag	atcttgggtt	tggactacga	caaaactgca	taatcacggc	acatatcggc	660
aatggagctt	ccatcgctgc	aatcaaaacg	gcaaggcttt	ggacgtatca	ttggggatga	720
caccgcgtaga	agggctatga	tggttacgcg	cagtggagac	gtagacccc	gtgttcttac	780
cttctgatgg	aagcagaagg	cctcgaagca	gcaggaatct	ctgaactgat	caaaaaaaga	840
gcggtgtact	tggcgtaagc	ggtgtgtcct	ccgacatgcg	cgaatcgaag	atgccatcaa	900
gaatggcaac	gaaagagcta	ctctggccat	gccatgtacg	actacaggat	caaaaaatat	960
gtaggagctt	atgccgctgc	tgggaggagt	cgatgtgctc	gtattcaccg	gtggagtggg	1020
tgaaaccaaa	taccacgaga	g				1041

(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

gcttggcact	gaaaggacgg	tacaggtgca	cgctgagcag	tccgactttt	ctcctttggc	60
acggaggaag	tctatcactt	cgcgaaatgc	ttctgtcacg	aacccatggc	aataatcaca	120
tgctcggctt	cgggatctcc	gtaatagcga	acagatggta	gtggcgccc	gtaaccgtag	180
ccagctgata	catatatact	gaacagcttc	gggcactgca	tcgtagaagc	ggttacatgc	240
ttcgcgttct	ggaaatagat	gtcgccgttc	tgtgctgtgc	cacgagttac	gggcactcag	300
gattgagagc	ttgcttgccg	aaacgcctta	catcgcccca	atcatgaacc	gggctaagtc	360
ttcattgtcg	agagcttcga	ttttctgaat	ctatgagagg	ttcggaaaacc	atcgaagaag	420
tgaatgaagg	ggatgcgagt	agtagcgttg	ccaagtgtgc	cacgccggcc	aagatccatg	480
acttcctgca	ggatccggta	cagagctgag	caaagccggt	ctgacgtgca	gccatgacac	540
ctgatggctc	ccgaagatag	agagggcatg	ggaggcaata	gtacgtgcga	aacgtggaaa	600
acacaaggta	gcaactctcc	ggaaatctct				630

(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4319 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4319

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

tggcgagaag	atgatcttcg	gtgccaatcg	cgataaagga	atcgtattga	aggtctcaag	60
cttcgtgccg	ttacgatagg	cgaagacggt	tacaccctga	tgacgtactc	gtgcacgata	120
agtatgagca	ggacgtaacg	ctgcacctct	cctcgcaatg	atgggttaca	cggatgatag	180
tatgcctatc	gctctcgtgt	catccgcgac	gtggaagcac	cctgctacga	cagagcgggtg	240
gaagccagat	cgaagagatc	cagcagaaga	accccatacg	caagctccat	gatccctcat	300
ccaaggagac	gtttgggaga	tcaaataaag	cagtttagac	gatagtaccc	aaacgggtag	360
gattcgacag	aaacctttcg	gggaggatgt	cgttcctacc	cgtttctctt	ttatgggacg	420
agtgtagacc	ggttattcga	cggggtcggg	gattgatcga	gtataaaaagc	agggagccat	480
gccgaaagat	gcggtatggc	tccctgtcag	tcagattatt	tgtgtctgaa	atacttccgt	540
acgagaggag	ggtcagtcct	tggcttccat	acagtccctg	gaggtttcag	atttcgaatg	600
cgccaatcct	gcggatatag	attgttggca	cgtgtgcgag	atthtttcagg	aagccgagcg	660
gccttctcgc	gaacgtggcg	aggacyagcc	gagcggcaga	tcgggcatgg	tggtcacaga	720
ctgtcggggc	aggtagagag	agcttcatct	cgtgaaaatt	ccatatcgaa	gaatgagtg	780
tcgtcatttc	cgtggacaaa	gccagagccg	gagccgggtac	aagatctttc	ccctctgcat	840
ccccactgtg	atccctgctg	tgtgcagcct	gatgccattt	gcttgagaca	ttcgaccatt	900
tcgagcacat	tgggagtaag	agcatgcaca	tctcgtctcc	catccatcgc	cattcgtatt	960
tttcaggggc	atgtacgaag	atttgatacc	atgaggata	tgcttttctg	cgtttttctt	1020
ttccttgctt	tgggttgctt	atgccttacc	gattctctct	ccggtttgcg	aacgaggcga	1080
agaaaaatcc	ttcaccgcga	actttatgag	ggaagaaacg	gtatgccgtg	cctcaccttt	1140
gagttgaggg	gcgatctgcc	attcgggtgag	aacatcaaag	ccacaggctc	cgctccgaaa	1200
gtatcgatga	ggaaggccag	attgtttcgt	tctcaagcgt	attgaaggta	caggtgctgt	1260
atgccaagag	acctccggct	gtaacatttc	ccatgcggca	gagaggatac	gctgtgcctt	1320
gcggcacaaa	tctccacatt	ttgcaggctc	cattcggatc	gagtagcctc	atthttacgga	1380
acatgccttc	tcccagcaaa	ggagcatcga	ccagaatgaa	gcgaaagtct	ctcctgcgga	1440
tttcaacctc	tcgggatctg	cttcggtgac	ataccggctg	gatagcccca	cttgatcatg	1500
ttctcagcca	gtatattggg	cgatgggtgga	tcacttcatt	gctgaccaat	acactgcctt	1560
cgggcaattg	ttggttagga	gtgtgctctt	tccgcccggg	gaagcgcaga	gatccaagcc	1620
cggacagggtg	attcgcgcgag	cagaggtttc	aactgccaca	aaaacaggaa	gaggcttccct	1680
gtacatagta	gctcgcggca	tggaaaaccg	gatcatggtg	aaggaaaggcc	tctcagccag	1740
atatgtaccg	agggacaccc	agggacagac	ttattgggtg	gcagatccat	tacagtggta	1800
ccgatgcccc	gttattagga	ttgcgaacga	tgcttacagg	tgaggggctg	tcgagagctg	1860
caaaaaagct	tcggcttcgc	tccctaacag	tgggcgcata	gcggagacaa	atcttgagggt	1920
agtgggtgca	tctattatth	atagagtaag	aagatagttg	aattttatgt	agtgcaggct	1980
tccctttctt	ccattccgag	agggtagcat	acgaatcagt	tcgtcgggac	aggagatatg	2040
ggaggcaatg	catagtttgt	cgtcggcccg	cagtggcgaa	tgagttcgtc	caccagtttg	2100
tcgtttcata	aggtgtttcg	atgaagatct	gcgtctcgtg	acacttataa	atccgctctc	2160
catttctttg	aaagcagcca	aacgctcatt	ttctccgatg	ggcagtagcc	tttgaaagcg	2220
aagctctgac	cattgaagcc	ggaagccatc	agtccatcag	gatcgaactc	ggccccacga	2280
gtggctccac	cctcaatccc	ttggctgtgc	gatggctacc	acatccgcgc	ccggatctgc	2340
tattgcagga	caccggcttc	ggagataaac	cccatgctct	cacctgcagc	cataggggtg	2400
aatagggtact	gacctcctct	gccgatgtat	gcttgttagg	ttcgtagaag	tgagcgaatc	2460
tatatcgata	gatcggctctg	ccgttttcag	gaaacgcagg	ccgaacggat	attctctaca	2520
atgaaatggt	gcaggctcgc	gacgatcgcc	tgttgtattc	gggcagtagc	cggctgtgct	2580
cggtttcgcc	cagcgggtccg	gaataagata	gagagtggga	ttgttttcca	tcataatcgg	2640
gaaagggtacg	ggactaaaaa	aaggcttttt	ttattcgtga	agattcgtga	gctgtcggct	2700
aatagtagccg	tactgcctca	gataaaggcat	ttcactgcgg	agatagggct	gaaagtcaga	2760
cccgaagct	gctcttcgat	ctgatccacc	ggcaccactt	cccggctcgc	ggatccttgt	2820
cgcacaagat	cgtattcgat	tcgacatgtg	agccaaatag	agatagacga	gtcgggtctt	2880
tccattttca	tgtggatata	tcgcagagaa	agtgccgtct	cagacgattt	acaccgcaga	2940
tcgttcgtct	atgagacttt	gagccaattc	cttgtgatgc	ttatcagtat	cagccacgaa	3000
aagaaagggg	tatcatagca	gtcgcctcgt	caaagatcca	tttgagtaa	tggctcaaat	3060
agatcatccc	gtcgcataatg	gctatcagcg	aacgacgggc	agcagacctg	cagtaggatc	3120
ggccaaggct	tccgtccgga	tcgtgctata	cgtccgatgg	attcaccctg	tgatccctgt	3180
atcggtatcca	ctcctcgtgg	tgcatthtct	tacgtaccca	ttcaggtcga	atcactcata	3240
tatatagagc	ataaacagcg	atacaccggg	cagatacaat	aaggggtgtg	aatcctcccc	3300
accctgaagt	agagcaaaa	tcccagaagg	aaatgaaaaa	taacgatata	cgcaggatgc	3360
tgctgtaat	gcgtccatac	tcagcatgac	cagacgtttg	tcgggacaa	ccgcatagtc	3420
tccctctctg	cactgcttct	gcggaacagc	ctgcacgcag	ctacagccaa	gagcatagcg	3480
ccagactcca	gccaaggctc	gtgagcgggg	aagtcttgga	tagccacaag	taggtagcaa	3540

aagaacaagt	acacccagcg	aagtcaatac	ggacggcgac	agttcttgct	ttttcgacga	3600
aaaaagagca	tccctccgat	gattgcaaga	gagcaatggc	agccgtccat	gccaccatta	3660
tccccgcact	cggcacaaca	ggagcaataa	gacgaccggc	agaaatccac	ccatcggatt	3720
agacccaata	agggtgctat	atccggatac	ttctttgtag	tcaaaatagg	gatcgttttt	3780
tcgttttatca	gtataacagc	catagacccg	tttggttgtc	atcggcagta	cacactgtat	3840
tatgaaaacg	attgagggct	gactccggga	tcggaaccag	cccttatcgt	catacccaaa	3900
caaatgtatc	tatcagatat	aagaaaacaa	acgggtattg	ttttccacca	aactcttgat	3960
ttttccctca	gatccggagg	caaagaagcc	tcggacagca	atcgggctat	aggctgcagt	4020
gatgtatatc	tgtccctatg	agatcgtaat	agccggcctc	gagtaatcat	atgctttttc	4080
tgatgcagat	gaattgtatg	ctccgaacag	agaaaaaggt	tcagttgaaa	cattacgcct	4140
tgctttttga	tcgcgacata	atctttctct	ccatgtatag	ataacgttcg	gggtgtgcc	4200
atacgggaga	gaggctttga	atcgcagatc	ggcaagtagc	ccattaatc	ctataggagg	4260
agcatatagg	aggtttccac	caaaatgtaa	cgatctccca	gcgtcagaag	cgttctgcc	4319

(2) INFORMATION FOR SEQ ID NO:1106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

tttggaacc	gatgctccga	acttatctcc	ctaccatcta	ggagtttccg	tacacagcct	60
tcttggtgat	cctaagtctc	aagtccgtga	atacacctct	ccatctgtac	ctagtgcact	120
gagcagggct	tccnntgacc	accgntatt	cgtgattccc	tgcttgctct	tcttcccgaa	180
ggataagcat	ccttttatcc	aaaagtcaca	gaaagcatc	tcggtaagcg	catgataata	240
accgaactgg	ccatgtgtcg	gtattttctg	aatagtgaat	ggctcacctt	gcgttgggtg	300
tgaatgtctt	ctaccgaata	gaatacaaat	acgggcaatg	gccgtacctc	ccctcatctg	360
ttgcataccc	ctctagtagc	ccttttggtg	tatcctgatg	ggtcttggtg	gt	412

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

ggtattgccc	ctctgtggaa	ccatttctac	tacgacaccc	ggagccaaga	tttgtcataa	60
acggaatcga	caagttcgta	gcgaagatta	tggctcgaag	caaacgctct	gcctccttca	120
agtctttgcc	acgcaactcc	ggcatcagat	agagctgtcg	tgtctcgtgt	aaatatccag	180
tccgaacaag	ataccctgag	gataagccct	gaagccaaag	tcatcaaaat	caggtggaag	240
aggacggata	tttatgatga	aaattcttta	gttgcattgcc	aacggaatat	ttttgttcca	300
aaatacagtt	caaagtacgg	aaaaaagcag	caaacagaaa	aacgtggcct	gtcccggaaa	360
tgggttgcca	gccgggagcc	gttaattcga	atttgctttg	cagtcttcgg	cgtaaatacct	420
aatcggcggc	tttatccgga	tattaagggtg	gattcgaatg	cgacaagctg	catccatttt	480
ggaggcattg	tgccaaacca	ttgctcctac	agatgaatgc	ctacagcctg	ccggctgcca	540
aatacgaacc	aaaaacgggtc	ggattgtggc	gcgtgttttc	tgaaaatggg	cggtgagaatt	600
tttctgtttt	ggagcgaaaa	ttttttgctt	cccacacaaa	acgaaaattt	tctcgcccta	660
cgtttttcgg	agcgtacaat	aggaaagttt	ggtgtgacgt	gtgacgtgtc	ctgaaaaaag	720
ctactccatc	ctgattgcct	tgtgcatatt	tcccttacca	tcaactatatt	ttctgtagtt	780
ttgtccgctt	catcaattaa	aaacaacaac	aatatgtttt	ccggaatcgt	agagaatatg	840
cccaagtga	ggatctccgt	cacgaaaatg	acaatctgca	cacacgatga	cggtgttctt	900
cgtcaatgaa	ctcaagatag	accaaagcat	ccacacaatg	gcgtatgcct	caccgtatgc	960
agcaagacgg	acaccaccta	accgtgactg	ccatacgcga	aacctctgaa	cgttccaacc	1020
tccgactccc	caaataggcg	atctcgtcaa	tctggaacga	agcatgatga	tgggcggcgg	1080
ctcgatggac	acatcgtgca	gggacacgta	gatcagacgg	ctgtatgacc	gctgtggaag	1140
aagccggcgg	cagtcactac	tattcgttcg	aatacagctc	gacaaggaga	tggctcgcca	1200
aggctatatg	accgtggaga	aaggaccgta	tgcgtcaatg	gcgtgagcct	gaccgtatgc	1260
gactccggca	tgaaaacttc	cggtgtgcta	tcatccctta	tactcgcgac	catacgaact	1320
tctccgcatt	gtctcgggta	gtgtggtcaa	tctggaaatc	gacattgtgg	ggaatatctc	1380
agcaagatgc	tccaatacca	atgaacccga	acgactttta	cccctgatcg	aacagcgaca	1440
gagcgatcgc	aagttcgatc	ccgaccgccc	gtaccggaag	acgtgcttca	gcgcattcatc	1500
gaagcggggc	gtctctcccc	tcagcctgca	attcgcagcc	ttggagcttt	gtcgtcgtca	1560
ccgatccccc	actcgcagac	aactggctga	agcctcatcg	tcacggttat	tgggtataat	1620
cacttcacgc	gtcagggtcc	cgtacacatc	gtattagtgc	aagagaagcc	aacttcacgg	1680
cgaccatcgg	ggggaaaaatg	aaaaaaaatcc	actatccaat	atcgacctcg	gcatagccgc	1740
cgcacacatc	acgctggcag	ccacgcgcaa	ggtctcggca	gctgcatcat	aggctgggta	1800
aacgaagcca	agaccgcgaa	atactgggca	tccctccggg	acgccgcgta	gtcatgaaca	1860
tctgctcggc	tattccgcgg	atccgcacag	ggccaagaag	cgcaaagaaa	ctcggagggtt	1920
cttcaccgcg	agaagtggta	ggctctctcc	tccctccgcc	cgaagagggtc	acatacatag	1980
tatatagtat	agctcattat	gtacgacatc	aaaaaatcag	ggaggacttc	cccatcctcc	2040
atacccggtg	acacggtaac	ctctcatcta	tctggacaat	gccgccacga	cacagaaacc	2100
catagcgtat	tagaccaaat	cgaacgagcc	taccgcacat	tcaatgccaa	tatccacgcg	2160
gcgtacacca	tctgagtcag	gtggctacgg	agcaacacga	aaatgtcgca	agcggatagc	2220
ccgctacatc	ggagcggaag	accccaaaga	ggtgtcttta	cgcgcggcac	cacagaggca	2280
atcaatctgg	tggcctcttc	gttggccaag	ctttcgtccg	ctccggcgat	gagattatca	2340
tcagtaccct	cgacaccatt	cgaatatcgt	cccatggcaa	cttttgcccg	aacgtaccgg	2400
tctcggctca	gagtgatccg	gttgaccgaa	tgggccaac	tggatgtgga	catttccggt	2460
ctctactgaa	cgaacgtacc	aaaatcgttt	cgatagcccc	gtcagcaatg	tg	2512

(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 735 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...735

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

gggttccatc	cttggacacc	agacgatcgg	cgatataagg	tttgagaaag	ccttgcgccg	60
gatctccgcc	aatccggctg	aatcggaagg	aatctcttcg	gtacgatctg	ctcgatggcc	120
atccccctcct	catttccgat	cataaaccta	tgctccgtaag	tgaagtaatc	ttttcggcat	180
aggaaatact	gtcgagatct	cgttggaaaag	acgacggatc	agctccagat	tttctttcgt	240
gaaggattgt	cacagtcggt	caatacacga	gcatagttat	cattggccgaa	aacgatttga	300
actcctccgt	cttgatgac	ataggatcgt	cctcgagaaa	atatcctccc	aagagggtttt	360
gatactaagg	aaacgcaatc	cattgaatcc	aaaaggagaa	aaaagaaaaa	acctcccaat	420
acaatccaac	gcttgcggat	atccattcgc	cacgatggcg	aaaccacctg	ttaatgctgt	480
ctattttcat	gctttgtctc	gtttgtgttt	tctgtattcc	gtattatagt	catatctgct	540
cagtgtctgc	cagccggccg	taccgaaaag	gatataattcg	gacagacctg	atttatctcc	600
tctcgggtat	gaatctcatt	tgttattatc	tcgatgaaac	attgaccac	cacgcggccc	660
ccaatcggat	aaagaagggg	cttaccgggt	gttggcatgt	gggtattttt	ctttgaagag	720
ctgcagatag	ttttc					735

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1977 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

acaaggaacg	atattgcccg	tactggattt	caaaaccgaa	aaggaaaatt	gttcaccttc	60
aaaaatactg	ccaatctcaa	tctgctgata	aagcacggca	agtaatcaac	ttaattaata	120
agcttgagtt	ttctacctat	ggcaataagt	aaccgtaagt	ggaggatatg	tacacaccga	180
ataccgctat	ttgttgatca	tgtttttgag	gtttatcctt	atgtcgagtc	gcaatgggca	240
gaaagagagg	aatgaaatat	aaggtttcta	cgggattaca	gtcgcgttat	cggcggtaaa	300
tagtgataac	tgtctcatgt	ttgcaacatt	gggggtattt	ttcaattcga	aaagtgggaa	360
cagccagcca	ctagcctctt	tgcaggaacg	tagcatacag	ccgaagtatc	aaaagccacc	420
tgtctatcag	tttcagacat	cgttgggtga	acattgggaa	tttacaacta	cggctattca	480
ccagggaaaag	ctgacagtta	ttttaagaag	gcacgttttg	gaggagctat	cgacctcaat	540
accatatcac	acctacgata	ggaatacgcg	gggcctatcg	gatcatctcg	atactgcccc	600
tattgtacct	gtgcggaaaag	attacaacac	cgttgatttg	gtatcgatat	ttcgttttta	660
gcgagtagta	tatgacagat	atgatgttca	aacgccacag	ggagagatgg	agatgcgcct	720
gcaagaacaa	gaagcgtatt	tgtcaagaag	cgcaccggag	agaaccagg	catagctcca	780
ggatattacc	tatgtggatg	tgccctaagcg	taagttcatc	ggctttctta	gtgtgactta	840
gaatcagact	agcgggaggt	cattgaaatc	tatcgcaaac	gtggctcata	gagcgactct	900
tcaagcagat	taagcagaac	tttcccctga	atacttcttg	gagatcgttg	cacaatataa	960
ccctctaccc	cttcatattg	tcaagacaga	tacaagcatt	gatttgacga	agaaaggagc	1020
gcttcatgcg	tatctgcaaa	cctcaagtat	acacctctga	tggaagcttg	gggaaattct	1080
gtttactcgg	tgcccatata	cttgagattt	gacctttcct	gaaaacaaag	gaatcagccc	1140
tgcagcaaaa	gaattcaatg	aaaatcccgt	gcaacatctc	aaaaaagaga	agctgcctct	1200
ttcggaaactg	ttccgggagg	cagcccttgt	ggattcatct	caatttcaat	agcaaatggt	1260
tctctgggttt	ttcaaaagtc	ttgagctttc	cgccacaaaa	agtcgtgcaa	atcgaataaa	1320
ccgcaaagga	aaaaatatgt	tgttcagcaa	gttcaccctg	atccacatgt	cgaagcggta	1380
gcagaaagggt	taagaggact	cttccgttat	agcctgaaac	tacccttacc	atgacaaagg	1440
gagtagccca	gccggctgat	acttctgaga	caatgcaaaa	tcgcgctgaa	caaagaagcg	1500
cgctccaaga	tgaataccga	gacaaaagccg	gtatcattgc	cgaaatagcc	tcccagagtc	1560
tgaccttaata	gccatcgaca	gcagaagcca	gctgatagtg	aaagtctaata	ttagtggttaa	1620
aatgatggga	gagaaattgt	gttccgtgcc	gtaatagcca	aggctgactcc	tacagtaatg	1680
gcgcctttgc	ctctggcaag	accgctgatg	ataccgtttc	gagggtctacg	gtgggcataa	1740

atgcagccga	tccgtgatga	gaacgatacc	cataccgacg	ttgagcgaaa	cgtcaccctt	1800
gcggatagca	ctcgagcatt	cattgagaat	atgccggcca	agatgatagc	cagactaaaa	1860
atactttttt	catgttggtt	tcgttttttg	acgttttgatt	gtctcttcta	atttttgatt	1920
tgttttatcct	gattctgatt	gtagtcagca	aggctttcag	tcttcatttt	ctatcgt	1977

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

ttcccagttt	gccactgcag	aacgcagcag	cttntctaca	cgtgccgaac	ttctttgtta	60
gagaacttca	gcacacccaa	ggcgcgattc	acttccatcc	acgaatcata	tcggggccacc	120
aatctcatct	tgcggggaga	agtaggccgt	tacgaagctt	ggcaaagtac	atctgcttga	180
gggcttcctt	tcttgctcgg	ctgaattatg	ttttcttgca	cccattgttc	ttaatacttt	240
taattttcag	attcctgaag	tgtttgatt	caaccgaatt	acttcttctt	gttacggcat	300
gaccacggaa	agtaccgtgt	aggagagaac	tcccctaact	tatcccac		348

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 886 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...886

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

cctgacatca	tggaaatgga	ttgtagcgag	tgtattggcc	tgtttgctct	cgcttatatt	60
tatatccaac	gccagtcccc	gatctatcat	gcacaggcac	cgtgctgac	aaaagtgcag	120
agaaaagcgg	tgcgacaagt	ggcctgcgca	gttccaggaa	ctcggcctga	tgataggcaa	180
ttcggaagta	gagaacagat	tctaattgctc	aaatccaagc	gtttgactgc	tattgtagtc	240
gacaacttga	tctggatgta	tccatataca	aacaagggtt	ttggcgcaat	gaatgttgta	300
tggcaatagc	cccgtaaagta	ttcagattac	tgacagggat	tctcgagaaa	ctattccttt	360
aggattcaga	tcaatgatgc	acattctttt	cactgaccga	tctcgagcag	aaagagcgta	420
atgggatagg	cgatatcaaa	aagacggctc	ttttggtcgg	cctattgcaa	ctcctgtcgg	480

ggaactaaaa	tgaatacgc	actcttcttt	gccgattcat	ggaagggaga	agtgctatag	540
tgacgaaa	gaatactcgt	aaagtggtag	agcgttacaa	tcaggatcgc	aggtgtcatt	600
ggcagacaag	aaggctacga	tagtcaattt	gtcattgaaa	acgaagactt	ggatcggtcg	660
aagaatttca	tcgatgccct	tatcgctcgt	ataacgacga	tgatcatgaac	gacaagaaga	720
gtgtcgctgt	cagtaggctg	ctttcatcga	tgaacgtttg	gccatgatcg	gcggcgagct	780
cggccggtag	atacggagat	cgaacgttta	agaaaggata	atatcaccga	tattctaccg	840
atgtaggcac	atatctnaga	gcagtgcga	tctgcanaag	acagct		886

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2151 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2151

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

ggctcatatt	cattcttcct	ttaacaacat	tattatttcc	ttagcgaacg	cgaaggtcag	60
ggtatcagct	ggtcttcagc	cggtaaaatg	ggatttcgtc	ttcaaagaag	aatactccct	120
atgtcgccca	gatggcagct	caggatttgc	caaagtggca	tatgatattg	gcttgccgaa	180
ggtaacggtc	tacgttaggg	cccgggtaat	ggtcgtgaat	cggtctattag	aacaattcat	240
ggagcggaat	cgaggttatg	gagattattg	atgtaacgcc	tatgcctcat	aacgttgtcg	300
tcctcctaaa	aagagaagag	tttaagagag	aagatcttct	aactttcgga	cgctctattt	360
tatgggatcc	gaattctttc	ggtgtatgga	ttcctataaa	ctatcaatct	ctcacatagc	420
aatcgcggtc	gtaccggaag	cttctgttca	tagaaaagca	tctgacacaa	aacaaacaat	480
aatggcaaga	atacagcccc	taaatacaag	atcgcgcgta	agtttggcga	tcctatcttg	540
gtgcagataa	agttctttcc	aagaagaatt	atcctccagg	tcagcatgca	ataaccgtcg	600
tcgtaagacg	agcagatgat	gcctccagct	tcgtgaaagc	aaaaagcaaa	atatacttac	660
ggtgtatttg	agaagcaatt	ccgtcattgt	tccatcggtc	acagcgcgca	aagggtgtaa	720
cggttgagtt	gcttatcagt	tcttggaagc	acgtttggat	aatgtgggtg	tcggtttggg	780
gattccccga	cgcgttctgc	tgacggtcaa	ttggtttccc	atcgatcatat	tacgtagatg	840
gcagtgttgt	caacattcct	tcttattctg	tttaagcccg	tcggtgatcg	gcgttcgtga	900
gcgttctaag	tccttagagg	ttattgctga	tctttgacag	gtttcaatca	cagcaaatat	960
ccttggtatg	agtgggatca	tcgtcattgt	ccggtaaagc	gctgcatatg	ccggtatcga	1020
cgacatccct	gaaaatatta	aggaacagct	gatcgttgaa	ttgtattcga	aataatccta	1080
gatcccatgg	caatattagc	atttcagaaa	ccgaaaaatg	tattgatatg	gagacgtcgg	1140
actcgatcgc	caagttcgag	ttcaaaccct	tggagccggg	tatggtatta	ccattggcaa	1200
tgcgcttcgt	cgaatactct	tgtctcgctt	gaagggtttg	cgattactgc	aatcaagatt	1260
gaagggttag	agcagaattt	gctactattc	cgggtgtatt	ggaggacgtt	actaatatta	1320
tcccaatctc	aaacaagttc	gttttaagca	gattgttctc	aatgccgatg	taagaaagct	1380
acaattgtta	tctctaattc	ggaggtgttc	cgtgcccgtg	attgaatgca	caactttcaa	1440
actttgaagt	gttgaattcg	aatcttgtca	tgtgccagtc	gataagtcgg	ctacgcttac	1500
tatggagttt	tccataaata	ggggcgtggc	tatgtgtcgg	cagaagagaa	tcgcgcagag	1560
cataatgact	ttccacgata	gcgatcgact	caatctatac	gcctattcgg	aatgtcagta	1620
tgcggtagag	aatttccgcg	tagaacagaa	gactgattac	gaaaagtcct	gatggaagtg	1680
accacagatg	gttcgatccg	tcctgtagat	gctctcgtga	agcagctcaa	atcttgatat	1740
cccacttctc	tctgtttgca	gagataagat	agcgatagag	tatgtggata	tagtcgatac	1800
tgatgagttc	tctaagattc	tctgcatatg	cgtcaactat	tgaagtcaaa	gctttcaggt	1860
ctgacctgtc	tgttcgtgcc	ctcaattgtc	tgaatgcagc	cggagtagat	agttgggcga	1920
tttagtgagt	ctgtcacgga	gcgatctgat	gaagattcgc	acttcggaaa	gaagtctttg	1980
actgagcttg	acgaactgct	ggcaacgcta	atttgtcgtt	tggtgatggat	atcagtaagt	2040
ataaattaga	taaagactag	aacgatgaga	cataataaga	aattcaatca	cttgggccgt	2100
aaggctgtca	ccgtaaaagc	atgctgtcca	atatggctgc	ttcgttgatc	c	2151

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6231 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6231

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

tggagcacia	cccctgctcg	gtcatcgcg	ttgccgtctg	ggtaatacca	tccggagatt	60
acggagatgc	agacacgtgc	catcctcggt	gcttgcttga	gctgaagaag	gaagggtgtag	120
tctgtctgcc	tgagatcatg	gtgcctcgac	ggggatcctc	catgagttca	aacatcagga	180
agaggtaatc	cgtgctcggc	tgccaagctg	ttcgaagaga	agggcgacag	tgtggaattc	240
caagtggtag	gatgatcgaa	gtaccgctg	ctgcccttac	ggcggacaga	atcgctcttc	300
ggccgagttc	ttctcattcg	ggaccaacga	ccttacgcag	atgctttcgg	ttactctcgt	360
gacgacatcg	cttcggttct	ccccatctac	ctgacaagaa	gatcctgaaa	gtggatcctt	420
tccaggtagt	cgaccagaaa	gtgtaggcca	gctcgtaaga	atggctacgg	agaacggccg	480
caaggctcgt	ccaatctgaa	gtgcgggtatc	tgccggtgagc	acgggtggtga	gccttcgctcg	540
tgaagttctg	ccatagagtg	ggattgaact	acgtatcctg	ctctccttcc	gtgtgcctat	600
tgcacgattg	gcagcagcac	aggccgttat	cgaagaagca	aataagaaaag	aatacgttag	660
tctcttcgac	tcgtatgaag	aggctgcacc	tatcggttta	ttggagaaaag	agcaagtccg	720
attcgctcgg	cttgcttttc	cttttttgtc	cccaatctcg	gttcagaggc	ttatcctgaa	780
cataagtcac	tcctcttttt	ggggggcttg	atccgaaaag	gaaaacacaa	ggacgttaat	840
agaattttat	ttctacagtt	catccagcat	aaaaactaca	aaatgtgggg	agatgggaaa	900
gaaaaatacc	aatcggtcgg	tattgtacga	gtgcgattat	catagtcctt	tgcaatgatt	960
tctcggaaca	cctttaattg	tactcattat	gaaaaaaaat	tttctttttt	tctccctcgt	1020
tttagcagca	tcattgtcgt	gctgtcatct	tggtccaagg	atacgccgga	tgcccccagc	1080
agtagcgtat	cactatccgt	gccaaactac	cggaaggcag	tacgataaga	gtctcgcagg	1140
tatagccatc	gaattcctcg	atcttcgtac	ccaacaaaag	tggaaaaaaa	gtcgcacaaa	1200
gccggtggtt	gctctcttag	tctggtgcca	gtgtatatac	gattacgata	cgtggcgaaa	1260
tagggaacaa	cagttcgttg	ccatcaagga	aaactattcc	atcgacagaga	atactacctt	1320
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taatagcgat	aaggtggtct	atgccgatgg	gtcgctttcg	gtcttgccgc	acatgccaac	1500
gtaacagggtg	aagacgcttc	accgaggagt	tgaccaagaa	caaccgcac	gtcctttcca	1560
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agaggattta	tctctctgtt	cttttcgaga	tagatgagcc	gatcgagact	ttcctggcca	1860
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gaaaatgtgt	tggatggtat	cgagaccgcc	aataccggtg	tatgaaagtc	aagtccctgc	1980
ccgtgacagt	ggataagtcc	atgatcggtt	accgggttgc	caccgtggca	tactcattct	2040
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gactgtaagc	ccgtcaagga	caaaactctt	ttcctgcaag	attctaatag	aaaagtcatt	2160
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cattggtttt	gccactgtac	tattggcgga	tcaggcttag	gggtagcctg	tgacgggaag	2520
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caaagacata	gtatcgctct	gaaagaggtg	caggtgctgg	ccacttataa	gaacagacgg	2700
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cggctctgacc	tgtacgttgc	ggatcgtagc	gttactcgca	ggacgggaag	aatgccggtg	3000
tcgaccttcg	taccatctcc	acagatcata	tcgaaacctc	gaaatagaac	ggggcatctc	3060
atccgtaggg	gaaggtaatt	ttgtcgacgg	agccattcgc	atccgtacca	agcaagggtc	3120
tgctccactt	ccaaatcgtg	tcaaggctga	tccccttagc	aaactggcct	atgtggggaa	3180
gggatcaaag	tgtccaagcg	cggggcatcc	attcatacgg	gaatagactt	cctgacaaca	3240
aacccgatgt	gagggaggtg	ttggatagct	ataagcggag	tacctgcatg	ccagatatag	3300
cgatcagttg	aattacgggg	atatgatcgt	ggcttgggta	tcgggctgat	gcagaccttt	3360
tccattcaag	acagcaaate	gatcagctcg	tcaatgagta	tgaagagacc	tacaactcca	3420
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cgctccgctt	atccgggaaa	caacagctat	atccgcccct	gtccaaactat	aatataccgg	3840
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gctgggtatt	caggccggac	gagggctacg	catctattca	atctgccttc	gtcctatgcc	3960
ctctctcgga	gatgctgata	gagccgcgta	tcaaggccaa	ctggcagtag	agagccgaca	4020
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aactggatca	tctcatcact	tatactatat	ccacaatccc	gagaatccctg	ctatcaggga	4200
gaaccgcaat	gtcaaaaaga	gatcggcata	gatatgacgt	acaagcgttt	cgacttttct	4260
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ccaaagtagt	caagcgcgga	tcgaatttcg	tttgcgcaca	ccttatctga	aagccatcaa	4500
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tgttccgacc	gatagtgtcg	gagtagcagc	aggctctcta	tccttagtgg	gctattacga	4620
aggcagctcg	cacaaacact	accaacgctt	caatagaatg	tttgggtcaa	tacgcacttc	4680
cctcgttata	aattgatctt	cactcctttt	tcagattatg	ctggcacgat	gcctcgtaca	4740
gggggcatga	ggaagcgagt	tcccctatgc	ctatatggat	ctcgatggag	tagtccatcc	4800
cagagcaagg	ctgccattct	ggaggctgct	gccacgaacg	atattctcaa	gacttgagcc	4860
gagagcggac	ggagctatac	tacagggtca	catacaaacc	atatcgctgc	gtatcaattt	4920
caaagccacc	aaagagttct	ccgaccgtag	cggctggctt	ttttcgtgga	caatatcatc	4980
gacatcaate	ccaaatacaa	caggccaata	atacgacgga	gcgagactgg	bctataacct	5040
atttcggata	gaaacgacat	tcacctatg	aaaaccattg	taagatacag	ccgcctccgg	5100
tcgctctctt	cttttgcctt	ttgggagctg	tgcaacttgc	tgctcggcgc	agatgctcaa	5160
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gcgattcggc	cttggttcgtt	tcggctcggc	ctatggcgat	attgcggggc	actatcttcc	5340
gacaacggca	ataactactc	ctcgctctcg	ctcgaactcg	gtggtcgcat	agtgtccgta	5400
actatggcac	attgcagggc	agtgtctcct	actcacgtgc	atgcacaaac	gcacgcgctg	5460
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accaatacga	ccggtgcatt	ggagctttct	tggtgtaoct	ctttacgctg	cctcgagaga	5700
acaggctctg	gctttcggct	gcgtatctct	atctagacaa	cacctcacac	agtacaactg	5760
gcgtcccggg	cagcaggaca	aatctctctc	agctacgggt	tcggtcagggt	ggatgtcagc	5820
aacagcccta	ttggttcggt	atctccagaa	tgaactacgt	caacggatgg	aagcttagct	5880
ccgtctggat	acccgtaggg	gcgatgccat	cggctctcgac	tacagcggca	cttcctcgat	5940
accgaagaga	ggctcgccat	caatctcttt	gctttgctta	caatcgccctg	cgactctatg	6000
gtagctggca	tctgtcggac	ttcgattttc	attttcagcc	gactatgctc	tcgcgcaagg	6060
gatagagcgg	atatacaaga	ctacaagccg	gatgataatt	atcatatcta	cgacctccgt	6120
atcttgccat	tcgccgctgg	tatatgctca	atgagttttc	tggccaagcc	caagcttcta	6180
ccggattcgc	acggatagag	gttgtgcctc	gagagttagt	gccgtagtga	t	6231

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1059 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

ccagatgaag	cccgagaagg	tggctccacg	agatacgaaa	gagaagttcc	cgtttgtggc	60
gttcccgaag	agtgggtacc	tgtactgcat	aaggccggtg	tcttaccgta	cagtcgatgc	120
gagaggataa	accgggcaag	gtgatgcgca	gctgatggac	atcattaaga	aatataagtt	180
ggggcttgcc	ggtttgatct	ggaaaaccgtt	tcggcttggc	aggaagcccc	atatgagtaa	240
cgatttacaa	ggatagcggg	gcgaatagga	aggctcttgc	tcttcctgtc	ggctttcttt	300
tttatccgga	taattaaagt	atcatggggg	gaatcgggag	aatggaatat	tgggtagtgg	360
cagttgggct	acggctctgg	ccaaaatcat	atgacctctc	aaccatccat	caattggttt	420
atgcgccgcg	aagagcaggc	gagggcatta	agcgtacggg	gcgcaatcct	aactatctgc	480
gcgatgccgt	ttcgatcctc	ggaaaatctc	atttttcacc	gattcggatc	tgaacagttt	540
ttcagagcca	gcgatgtggg	ggttcttgtc	actccttcgc	ctttcatcaa	tcctatctga	600
aacgcgttcg	ctcgtccagc	atgcgcgaca	agctgatatc	aatgctatca	aggggatcgt	660
gccggatgag	aatgtcttgg	tatcggatat	ctgcacgatt	tctgcgatgt	ccccaacgaa	720
ctgatagggt	tagtcccggg	ccttgccatg	cagaggaggt	ggccagagag	cgcagatcat	780
atctacgggt	ggctgcttcg	atatcaataa	ggcaaaaagcc	atggcaaacg	tacacgcaac	840
gattatgtga	agctgtacga	ccagtcagga	ccgtagtagg	cacgaatatg	cctcgggtgct	900
gaagaatggt	tatgccattg	ctgccggaat	agcaacggtc	ttgcagtatg	gcgacaactt	960
tcaagtctgt	cttgatgtcg	atgccattgc	tgaatatgaat	agtttcgtca	atacccggtca	1020
cctcttgtaa	gagagatcac	ggattcggta	tattgggctg			1059

(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2146 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

aaacttgaaa	ttgttcatga	tgaatatgct	ttttgtctat	agccggtaaa	tgccgtttgc	60
gcctaccttt	tcaaaggtag	caaattcttc	atcatgtgga	aaatacgatg	tcgatggttg	120
gaatgtacac	attccgggtat	caagtacgta	ctctgaccaa	attcttcgaa	taaatacctt	180
gaaaggcgct	tgatattggg	ttctcttagc	cttaaagctt	actccgattt	ctttaatctc	240
cttaatctca	ttctcataag	gattttctcc	ggatcaattc	qtaagtagag	gtgccttatc	300
gtattgtaaa	aatctgaaat	agaacttttt	atgatctgtg	aaatttccac	gagggctttt	360
attcataatt	cgctcagata	taaaacgaga	gtaattcatg	tagccgattt	cgacgaatag	420

tttcttccaa	cattcataga	ttttgccgga	gagtaggatt	tgaccatcaa	ctctgattct	480
tgtcccattt	cttacgaaga	gtttcatcat	ccatcaataa	gcgtaactta	tccgcgaagc	540
ttcatgtgct	tccattggca	caaggaaacc	attgcgaccg	ttttcgatag	ttccctcggg	600
ccggtcggac	aatcgtatga	gattataggt	agtgcattgc	ttctgcttcg	agaagtacca	660
ttggtagtcc	ttcgaaacgg	gacgtcttag	ataaatagca	gatgattcgt	agtatttgcg	720
aatttcgggt	gtagaggatg	tatttctatt	tgcgactcca	tattgcgaga	tgcaatttct	780
ttactagcat	cgattcattt	tgcgccatctc	cgactatgat	aagcttccaa	tcagcctttc	840
tcgcagcact	cgtgatgcat	cttctatcat	gaattcaaaa	ccttctggta	ggttaagcct	900
gccaatcgcc	aacatttggt	tgtgagtagt	acatctcttt	ggactgtagt	aaatgaaact	960
tgattgggta	tgacatatgc	ttagagcgtc	cacgtaagat	tgccctgaac	gattgctgat	1020
ctctttttgc	agtgtctaaa	cggcatcaag	ccctgaatac	agaaaccccc	ttatgcgttt	1080
gtaatagggc	gggcaatatc	ataagagata	tgttcgcata	cgatcgtaat	attctgcctc	1140
tgttactgat	ctgagacaaa	attgtattga	taaaaaatta	gtccctatca	ataaaaccgg	1200
ttcacgcttc	ttgtataggg	ctttttcctt	cgataagcct	tgaaatatac	tgttttgcgg	1260
gctaattgcat	tgccataaagc	ctaattccga	gatgggtgtac	ttctattcct	ttttctactt	1320
ggaggaaggc	tctccttctt	ttgtacaaac	gctgactaat	gatacgcgat	gacattggca	1380
tgacaggtgt	tagccaagtt	gatcacggcg	cgttctgtac	cgacaggttt	gttattgtat	1440
ctaacagcag	ataaatcata	gagaatatct	aaacggttct	ttttttaaga	aattcatcaa	1500
ggctattttg	agtattaatg	cttcaaatat	tattgattgt	aattcctatg	tgaatctatt	1560
tcatttgatg	atattctggg	taagcatgcg	gtttgttgat	cgcaatatgc	atattcactg	1620
caatattcat	gatttttttt	gatattccaa	agattctcct	cagggattgc	catttggttg	1680
tcatcttatt	gtctttttgc	gatgttttcg	cccaacctga	taaaaatcat	tccacctcgt	1740
tgtttttttt	atgtgcgatt	aaagataatg	gcttttcgat	acctccttca	ataggcaata	1800
acacgggtatt	ctgggtcggt	ttcttgcata	gctctttatc	ggagggcata	atgcaactgg	1860
tttcgatttt	atatgcagaa	ttaaggtcct	tgagctttct	tttcccttgt	gatgcgactt	1920
cttcatgcct	tttttatctc	tttggtttgc	aattctcctt	atgttttcgc	aatacccaaa	1980
tacgagccaa	aaaagttttc	aacaacgaaa	cgagtttgga	atgattccaa	ataagcacct	2040
gaatggaagc	ggattttgag	tcgaagaaat	gagaaaacgg	actttttcag	tttgagtttt	2100
gatctaaaga	gatctggaaa	cgatttatat	ataaatcatt	tgcaat		2146

(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

gccgctgctc	attcgggatt	ccagttcggc	tttctccttt	tctaattttg	tagttcggct	60
tcgagccgtt	ccagctcctg	cttctccttg	aaggtcagtt	tcgcggaacg	tcggcagcgt	120
cggttcgggg	cttttcgctt	tctgcctacg	tgtcgagggg	gaagattcga	cggctctgcct	180
ttcggcctct	tcctgcgttt	gtatttcgcg	tactgggtgt	agttgccggg	gaaatccttc	240
acgatccgtt	cccctcgaac	gtgaagagat	ggttcactac	cttgtccatg	aagagcggtc	300
gtgcgagacg	acgagtacgc	atcctttgaa	ttcgctcagg	tagtctccag	cacgttcagc	360
gtgaggatat	cgaggtcggt	ggtgggctcg	tcagaatcag	gaaattgggg	ttcttcatca	420
gcacggtgca	gaggtagagc	cgcgctgttc	gccaccgctc	aacttggtga	tcggcggtata	480
ttgcttctcg	gcgggaaaa	gaactgcgtc	agcaaggccg	atgccgagag	ggtggtacct	540
ccttttccatt	cgaatcacc	tcggcgatgt	ctgcacggc	ttcgatgagc	gtttgttttc	600
gtcaaaactgc	atgcccttct	gactgtaata	gccgaaggaa	ccgtctcccc	tacatcgaaa	660
taccccgagt	ccggcttttc	ttcgccagca	gcagccggag	gaaagtggtc	ttgcccacgc	720
cgttggggccc	tacgaacctc	ccttgctcgt	ccggctgaaa	atgtagtcga	agtcgctcag	780
gatatgcgat	cgccga					796

(2) INFORMATION FOR SEQ ID NO:1117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3743 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
 (B) LOCATION 1...3743

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

ctctggggtt	ggtacagtgc	aatgtgaagt	tcctcttcga	agggtgaggag	agataggctc	60
taccaatttg	gaagcattct	gccgcgcaca	caaggagagc	tatcggcaga	tgtgatcatc	120
gtatccgata	cgagcatggg	aagcgcaaaa	ccccgtcgct	aacgaccggg	ctgcgcggac	180
tggcatattg	ggaaatgagg	tgaccggccc	gaacagggat	ttgcactccg	gacacttcgg	240
agggtgcgtg	ccaatccgat	aaacgagcta	tgcaaaactta	ttgccggcat	cgtgacgaga	300
acgggtcgcat	cacgatcccc	catttctacg	atgatgtagt	accctatcgg	atgaagagcg	360
tcaaagtgc	gcacaggtac	ctttctccga	agaaaatact	gtcaggctct	tgacatagac	420
acogtattcg	gggaagccgg	aacagcacac	tcgagcggaa	cagctgtcgc	ccgtcattcg	480
acgtttgctg	atctgggggtg	gctatacggg	agaaggtgct	aaaacgggat	tgcttctcag	540
gcttacgcca	aagtatcgtc	acgattgggtg	gccaatcagg	atcacgagaa	atatcccaaa	600
tgttcatcga	ctacatccgg	tcggtggcac	ctaagcaatc	aaagtgaagg	tgactcctct	660
gcatggaggg	gaagcatacc	tctgcctatc	gatttgccgg	cctataaagc	agccgaagag	720
gcgtgtacca	tcgcttcggc	aaacgaccgc	ttgccgttcg	tcgggggtgg	agcatttccta	780
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agcaatgccca	ttcactcgcc	gaacgagaat	atgccgctgg	actcttcctg	aagggaatcg	900
aatcggtagc	cgagttctac	cgcatatata	ataagaagaa	accgtagagg	gtgcatacac	960
ggcaaaagga	aatcctgtcg	accctctttc	attaaaagaa	tactgcattg	ggcatattga	1020
taaaacagga	ctgctggaag	gtgtccgtca	ggatatcagg	atcgagggca	accgtatttg	1080
gagggtgctc	cggcgattgg	ctgtcatgcc	gatgaaatta	tagatgctct	tccatggccg	1140
ttatacccg	gttgcaaaac	tgtcacatc	attcggcatg	actatcttcc	gaggctacgg	1200
cgatgatctg	agactgatgg	attgggtgag	aactggatat	ggccgggtgga	agcacagatg	1260
acagaggaag	atgttactgg	ggttctaaat	tggcctgtct	ggagatgatc	aagagcggta	1320
cgatgctttc	ctcgacatgt	acgtcctaac	ccttgccaca	gcacgagcag	taaagagatg	1380
ggcttgctg	ccgtactatc	atccacgctc	ttcgacagag	ggatcaggag	cgggctcgca	1440
tcgacagaga	acgtgtctac	agtctgcacg	agcattctgc	tcctatagcg	acaggatcca	1500
attttcggta	ggacctcatc	catttatacc	gtaagcggag	agcaattgca	attctgtcat	1560
cgcttcgcaa	tgagaaaaat	gtgctgatac	acttgcacct	atcgagagac	gaaggagagt	1620
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caaagcttgg	cggttcggatg	ctacagcagt	gaaagcaacc	acatatacga	aagtgcgaca	1980
gtagatggag	ctcgaatcat	gggtacggaa	ccgggtgtcat	agctccggga	cgcttggcag	2040
atctgtgtct	gatacgtcgg	acatcccggga	aatgactccc	tgtcacaact	tcatatccaa	2100
cttgggttatt	ctgccaatag	cagtgcagtg	gatacgacta	ttgtagatgg	gaagatctga	2160
tgcgcgagacg	taaagtaccc	ggagaggaag	ccatattggc	cggcgagctg	aagctgcata	2220
caaactgatg	gcaaaggccc	acaaaacaca	cgaagaaatt	ataagcatat	cgcatatgaa	2280
actccaagaa	cagcatattc	acgggcagca	tccttctcgt	cctctcgtct	accgggctgat	2340
gcccacacgg	cttaatactg	ggtagcggct	taggcgaact	ggccgaaaaa	atcgaaaaca	2400
aaccgtcatc	ccctacaatg	agatacctca	tttcgcccac	gctacggctg	agggcacaag	2460
ggtaatatca	tcggaggaat	cttaagcggc	actcctgtct	tgccatgcag	gggcgctttc	2520
attattacga	aggatatctg	atggatcagt	gacgttcccc	atcagggtta	tgaagttgct	2580

gggcatagaa	aatcttttcgt	atcgaatgct	gccggcggca	tcaacacctc	tttcaagggtg	2640
gggagactgat	gatcattttgc	gatcacatca	acaacttacc	caatccattg	atcggcctaa	2700
tatggatatg	ttcggcggtc	gattccccga	tatgacacga	gctttgaccg	agagttcatc	2760
gctaaagcca	aaggcatagc	tcaagaactg	aattcccgtg	caaagagggt	gtgtatgtag	2820
gtcttacagg	ccccctctac	gaacgcctgc	cgaatacaaa	ttctggggac	aagtgggtgg	2880
cgatgccatc	gtatgagtag	ggtaccggaa	gtaatcgtag	ctcgacatac	gggtattcgt	2940
ttttcggaat	gtccgtaatc	acgaatgaag	gctaccactt	tgccgatgat	tcgtcaatga	3000
cgagcaggat	gttatccgtg	cagccaatgc	cgcatccgaa	agatggggcg	gatctttgct	3060
cgactgatcg	ctgccgtttg	aaaaatgtcc	aagtctgaaa	gagacaaaaa	gagagcttca	3120
tcccttgctc	cgatgagctc	taacgataaa	aacaattcga	aagacaagtc	ctccttgcta	3180
caaagggggc	ctgtttttatt	ttctctctta	tgacaaaggt	tccaaccgat	tacaggaatt	3240
cttcttgaaa	aggcaaaaagt	cgctgcaaca	gataagggtt	acgccgataa	agaccggtac	3300
aaaaaaacga	gagcgaaaacg	tctcacgacg	tccgctctcc	aattaaccctt	aaaatctaata	3360
accatgaaaa	acacaccaca	atataatcac	tttatgctaa	acaacatatt	atcggggggc	3420
aaaaactcgc	gtttatgctt	atttaacggt	ttgaaaagat	aatatagaac	ccaaaacctc	3480
tctttgggac	aagataaaaaa	ccgacttctg	ctattgaggc	cggcaaaaata	gtttcccctt	3540
aaactccatc	aacaggctga	cttcgatatta	gttacagtct	ttttctttct	tggctgtctg	3600
ccttatcttt	gaggattctt	cctgctgcgt	ctttagcttt	cttcgaatgc	tgtccgaaag	3660
tactctccca	gtcgttttcg	ttataggag	aaggccttca	cgctcgaata	tggttatcag	3720
agcacgaagt	ttgctttgaa	atc				3743

(2) INFORMATION FOR SEQ ID NO:1118

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2241 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2241

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

ggattcgtat	ctggcatcga	tatcattaat	ggcataagat	ctcgtcagcg	agcaccacaac	60
ttttcttgca	tacgggtatc	tgcgattttgc	ttttccacct	ctgccattca	ctctggattt	120
cgtacagata	gccttgctgt	tcggccgctg	caatttaatt	tgcttgctgc	tgatgtgatt	180
cagaaaaatca	ttcacgcagc	cctgtcggat	ccattgatac	caaatcgga	gaaaaactgt	240
tgggcaacat	ggagggtcga	acaccatcac	cgataatcag	agccaatagc	tcttcggact	300
taccgtaaga	cccaacttgt	cagcttgctg	cccagacacg	tagcctgtac	atactgctgt	360
gcgagctgat	tgttcagaga	agcacgctgt	tctcgggtgat	ctttgttcca	ctttgctcgg	420
cgcgtttctc	catcgctttg	aacgctgttg	gtaatcgtag	atthttgattt	tctctccgtt	480
gatatccaaag	ctacttcttg	gctctgacgg	aagaaagtag	atccggatcg	aaggaagtcc	540
cgataataaaa	ggcaaaaaga	gccacgcccc	ccactacgat	gagcaaacgg	ctttacctct	600
gattttctct	aatgtcgcca	ttttgttatt	atgtttttat	ttattatgca	ctattaagaa	660
tgtgttttatt	aagccacaaa	gatacaaccg	gcttcaaaat	gccaaagcctt	tcaactgatt	720
gttttttagt	tcgatggctg	tcgatggaca	ttttcacacg	ttcgatcttg	gtggaagaag	780
atctagaatg	gtaaaagtat	aaggagcaat	ctccacgacc	tcaattggcct	gtggatattt	840
tgatggctat	tcaggataaa	tccggccacg	gtaaggtagt	cgcagactca	ggcaaggaca	900
acccaaaacg	ttcgttcaca	tcatctattt	catacgacca	ctgaccagat	aggtaggag	960
gccgagctgt	cttgctatga	cttgccagtg	tctgtttcgt	cctcaatgtc	accgaaaatc	1020
tcttctacca	atcctctaata	gtgaccattc	cggccgtacc	tccaagttca	tcgatgacat	1080
cgcaatgctt	ttcttgcgct	gcgatgagtag	tcgcatcagt	ttattggata	catgctttcg	1140
ggtacgaata	cagtagtatt	gatacgtttt	tgccagcttg	cccacgaaac	atttcgctcg	1200
aatggatata	tcctactacg	tcatcatggt	ctgtctgtag	ataatgatct	tggacaaacc	1260
ggtatcgata	aaagcgtttt	gagtacttca	atatccggtt	gcaactcaca	tgctatcctc	1320
tcatgcgtgg	gatcatgcag	tctcgcacct	gaataccgga	aaaatccagc	gcttctggat	1380

gattttcact	tcggtagtc	agtcgttctg	ttcgttttct	cggacatatt	ttctgccaaa	1440
taatgatcga	gatctacgcg	ccccaacct	ctgtttagg	cacataattc	ttgtccacca	1500
gacgaataaa	agagcgagaa	aaccggtgaa	gagtttagac	agaggataaa	gcagataata	1560
gatcgctaga	tagggagggc	gaataacctc	atcatcatat	tggcattggg	cttgaaatgg	1620
ctttgggtag	aaattccccg	gtaaacagta	tgatgatagt	ggataaacag	attggagaac	1680
gacgatcata	gcacgttat	caatccattg	cgccaagggtg	cggccagcaa	tcccgccatc	1740
agcagaccat	agactaccaa	aacgtattat	taccacaaag	gagagtagtc	accagttggg	1800
ccggatgtcg	ataagcaagt	ttaacgctct	gcctgtgaga	tcgcctctat	tcctgtccaa	1860
ctaagacgca	gtttgtccga	agaaaggaaa	gcaatctcag	caccggaaaa	aagccggaga	1920
gtaaaagtgt	aatcagtatg	tacaggtaat	tcatttttgc	ctttgggtgg	tggagaaacc	1980
gatggtctcg	gcataaaagg	agaagcggcg	gctttgctgt	ccgatccct	tgacgaatcg	2040
gtatggtgtc	ggcggattgt	cctcctcttc	actcacatag	taagtcgccc	gaatgattga	2100
atatggttac	tcacccatat	cttgagttgc	agtgaanaaa	cgccccctcg	agtatttgtc	2160
cnggctttga	atgtagactg	tatcatcgga	ataaacaatg	gcgttttctt	atccatataa	2220
atcgggggga	atggaagtct	c				2241

(2) INFORMATION FOR SEQ ID NO:1119

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2974

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

tgccggaagt	cgaacatgcg	gatggccagc	gtacgcggat	cgttctcggt	tgtccctggt	60
tggccgcccg	ataggtgaag	agcaggccga	tcagcaggcg	gtgagcgaga	aagctcctgc	120
caaaagtgtg	cctttcctga	ttcgcgacct	atcgctccct	tttccaaaag	gaaagccaag	180
gccggtttgg	ccacgtggtc	agggtgattc	ctcccagcag	aaaggcaaac	cagcgaatgg	240
tgactcgccg	aaacttccac	gcatacttga	ccgaaccgac	agtacagtga	tggaagggga	300
agcaggaaga	acgagagtgg	atagctctcg	atagtgaacg	gcaggtaagg	gctgtgaagc	360
tgccggccga	caagagggtg	acgagcaggc	tctcgtccgt	ccctgacccg	ccacgcggcg	420
gagataggcg	taggtggccg	tacgcctgct	gccgtgcaca	acgtcatcaa	ggtcagacaa	480
atgccgaggg	taagctctct	cctccgattg	tgacgaattc	gaaccgattg	aggacataga	540
gaggttcagg	aaaggatggc	ttatgtcgaa	gcacactcct	gccgtttcaa	gcgatagtag	600
ttgtcatagc	ccagatatgc	accgatgagt	ccgtcgttgg	tgtcaacagt	ccggtggatg	660
cgatgtgcat	tgtcagtgtc	ccgtatgcag	gctgagtatg	cagcatagaa	cggtctcctc	720
tcggtaccga	ctgagagtct	tccgatagct	ccctttcgta	tcatttcagg	cgtttcagtt	780
cttatattgc	aaatgtagat	attatataat	gatgagaata	tactatggtc	tcaatgagag	840
gatactatgg	tctcctatga	gaggatacta	tggcttcaca	cggaggatac	tatggtctca	900
tatgagagaa	tactatggtc	tcataatgag	gatactatgg	tctcctatga	gaggatacta	960
tggctctcta	tgagaggata	tatggtctca	catgagagga	tactatggtc	tcacatgaga	1020
ggatactatg	tctcatatga	gaggatacta	tactcttatg	ggagatcctg	tttataattc	1080
tatatattgga	gcctgatgag	ccggtcagga	ggctcttcgg	aagttttatg	gaagtaagac	1140
agaacaaatg	atacagtaca	cagtgaagga	acgccgatga	aagtaggcaa	gcatacgaggc	1200
aaaacgatgt	attatgccga	ggctcgaaat	cgaaagtgat	tgactttgaa	gaggtgatca	1260
gggacgttgc	cgagtgaagt	cgctcacgac	cggcgatgtg	cgcaatgccg	tgatcgact	1320
ggctattacc	tcaagcgccga	gttgacagag	ggcaataaccg	tcaggctcgg	acgatcggga	1380
cttttcgggt	ttatgcccc	gggcggttta	tggagcatcc	caagaggtca	atgccacgac	1440
gatcaagggc	gcgaagattc	agttcataca	aacaggcatc	tgccggaagc	ctcttctttg	1500
atcaaggtgg	cggtggacat	ccctatctga	ccaagaagaa	agatctcact	gccaccggca	1560
cggagtgcgc	gagggcgatg	gatactccgg	tttgtagtcc	tgggggcccga	ttcgggtcta	1620
tttgctgctt	tttgctgtgc	cgattatctt	tgcaagcata	atgaagagga	atttatcggt	1680

cgacagcca	agtcgctgag	tctggccctc	gccatttttc	aggatgtata	ttcggcagtg	1740
tgttgctgc	atggctgcag	gagatgtggc	aggcgaactg	gagcgttgct	tcttggccat	1800
gcccgaatcc	gtctgccgat	cgtaaccatg	gaggagcgga	acgattttgtg	ccggagggca	1860
ggcatctctc	cggctttacc	catacggcat	ctctggagtc	ttctctggga	gtaccgttac	1920
gtttctctc	aatcggaact	ttatcaggat	tcagaccagt	ccgtcggaga	gggtgtttatg	1980
cgcctcctgc	ccttttcgga	tagcagctcg	tcattctgct	ggtcaccacc	gtcttgacc	2040
ccgtggcgga	tagccggacg	atttctacac	caccgaatgg	aagccgctca	agaccgaccg	2100
cttttgagc	aacctcggat	agaggatttt	ttctccccc	atacggacag	gcagtctatg	2160
cctatcaggc	catatatgca	agtctgacgc	cgtcttatat	gcagggtcgc	tctcggaga	2220
gtcggataca	ctctccatcc	gccaaaccgt	gacaagacct	tggcagagga	ggagaaaaccg	2280
cttgccgcaa	tttttctttc	accgaaccgt	tggctctatcg	ttggcagtc	ggacgattcg	2340
ttcggcaggt	tcataaagca	atacatatta	ttaaggtaat	agcaaggaaa	cgatggaagt	2400
acgaagaaga	ggctcgtcct	gatgggggtt	gccgtactcg	ttcttattgt	ttcatagggg	2460
ttttcttcaa	ttggcgtgtg	gttcgcgaac	gtgctgctcg	gaacaggatc	gcgagaactt	2520
tgccaagctc	gaaaaggagg	ccatgcagat	gaactggatc	gtatatccga	ggactatacg	2580
cagcagtaca	acaagcttcc	ggctctacgg	gagaaatgaa	tatccaattg	gccaacgatt	2640
cccttcggca	caactctccg	ccgagcgtgc	ccgcgtcaat	cgattgcagg	acgaatgaaa	2700
acagtcaaga	cgaccaatgc	acgcaggata	aacgagctga	gagggaggtc	aagacccttc	2760
gtgccatact	gaagtctgat	gtcgtgcaga	tcgctccctc	aatgcagcca	atgcccgctc	2820
ccgaacggag	aatcaggagg	tgagcgcaac	ctctccgagg	ccgtgggcga	agccagtcgt	2880
ctgaaagtgg	aaaagccgaa	ctgaccggaa	aggtggagct	ggcatcgaaa	ctggaggcta	2940
cggcatatcg	gtggctttgc	tcgacaagaa	aggc			2974

(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

gcctccgaag	ttcaagggtgc	ctaccggcgg	ttctaccctg	atcaagtacg	gctatgggat	60
cattccgaag	ctatgtatgt	gaataagttc	tatatcatat	atatgactat	tccaaagacg	120
cttgggagca	ggggatattt	ttggccatga	gttcaactca	cctcttcact	acgtggaaga	180
atacactttc	gatttgctca	atggaagggg	aaagacatca	aggtggcttt	cgtgaaaaac	240
ggtactatca	aatggctatg	gatgacatca	gaatcctgaa	ctaccaaagc	ctgcagaggt	300
agaacaagaa	ggtattcggg	tttatcccaa	tccgactacg	gatggctgat	gctggacaat	360
gtgggtgatg	taagcgccat	tcgtattata	gaatgtatgg	caggccgctt	gtgggtggctg	420
gcaatgccgg	tagctctaag	tgagtatcga	tgtctccgat	ttgggacggg	gcaattatgt	480
cgtcgatatg	agtgcaaagg	ccataggaaa	atcagccggc	tgataacaaa	agagtaaatg	540
ccattctctc	ccgaggggga	gggc				564

(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 882 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...882

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

cggctataat	ctcgaagcaa	atcctctctg	caagctgcaa	gcatgaaatt	cgacaaacga	60
aattccacac	tgcaagcctg	caatatgaaa	tttcggcgaa	aaattactcg	ctgcaagctt	120
gcggccatta	atctcggaag	caaaattgtc	actgcaagca	tgtaacagta	ttttctgcaa	180
ccgaaatcac	cgtctgaaac	ttgaatcaaa	gagatactaa	tcataagaca	attattttct	240
caataaataa	tcattacttc	catatttagt	catagctatc	atgctgactt	atttaaattc	300
ctcagccgca	acaaactcta	caccttcggt	accatcgtag	gcttgccctc	tcgctcatat	360
tcgtcttgct	gcttagcttc	tatgtacggc	gcaacagcaa	gccgatcgta	ttcataccga	420
ttacaaacgt	atctatcagt	aaatgtcgag	agtaagaata	actggagcgg	atttatctgt	480
tgctatcctg	cggaaacgct	attcgcgagc	aggtaccgga	tgtggaagag	atatgccgct	540
cagcgaatac	aacgacaagg	aatacatctt	tatcgggtgc	gacaagcaaa	cgggttgatt	600
gcctcccatc	tttcggtcga	atccaacttc	tttacttctt	cgacggctat	aaactccttg	660
aggggtgacc	caaaactgtc	ctttccagca	gaacagtggc	gttatttctc	ccgcgttggc	720
agcccgatc	ttcggaacgt	gtctcccatc	gggcaggaga	tttcgttttt	cgatttttcc	780
aaaacaagca	gacctttcgg	atcacgggca	tcatggagcc	gatgccggat	aacgccatat	840
cagaccggcc	gaactccttt	tctatcagga	gcccaaagaa	aa		882

(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2904 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2904

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

cgcaagtgtt	tttggctgcc	aaagagaaga	tagaacgaac	ttcttcagac	aggatacgaa	60
tatcgcaata	catgataacg	atccatatac	aaatcattac	gatctatata	cagatcgttt	120
tcaatttata	tacaaaacga	ttttaattat	atatagatcg	taaatgattt	gtatatggat	180
cgcggtctga	aaaaagcttt	tcaagagttg	aaatacaaa	aggcaccgc	tcaattcatg	240
gccgaccgag	cgggtgcctt	atgcatttga	tctattatgg	aagtattatc	ccaacctatt	300
cgttgccgag	atccatgtgt	ttggggaagc	aatatacggt	gcagtatgag	ttcggcccaa	360
tcggccggac	aaatcaagag	aaagagtaaa	gtcggataca	tgtctaattg	catttagccg	420
tttaatacaa	aacaccgtcg	tcgatagaat	ctcgtcgaca	tactgcgatt	tggttttaac	480
aggagatctc	attgctctgc	aaatgtaacg	aaaagaccga	ccggacagaa	actcttgaaa	540
aagcgacagg	cttcggaagc	cgctttatcg	gaaagtcggt	atcttcgtcg	tcaaagagat	600
acctgtgtat	ctcgtcaata	cggtatttat	catcgtttgc	ccatatacgaa	aaaatctttt	660
ggcagatggc	ttttatgtat	ggtcggcttg	ccgcttccat	ccttgtagga	gccttgcttc	720
agagttgccg	aggcttggtg	ccgaagaggg	gagagccgac	agcatcccat	gcgactcctc	780
tgtctatcgg	ggctgcgctc	tgcggacacg	ctacgcgtgg	ctacactctc	atctcgacca	840

cctacttcgt	gtacaaagac	gaagaaatgg	gctatgagta	cggctggcca	agctgctcgc	900
cgactctctg	ggcttgactc	tggtcgtaga	atgggtgcca	acgacgaggc	actttatgct	960
gcggtcgata	ccggtctggt	gatatggcaa	ttacacctca	ggccgcaacc	ttcaagggtgta	1020
agcagaagtt	ctcttcggtt	gtcccgaaga	aatatcgggg	caagtattgg	tgcaacgcgc	1080
gacggcaatc	cacgtataac	gaacgtaaca	gatcttatcg	gcaagccgtt	acagtcattg	1140
cacatactcg	ctatgccgat	cggctccggc	acctgacgaa	gaagtggggg	gaggtatcga	1200
ttcgctgata	ctcagcggag	atacctcacg	accgaagacc	tgatcacgca	ggtagccaaa	1260
ggagaaatag	actaaccttt	gccgatgaac	agttggcacg	antggnctgg	accctactac	1320
cgcataataga	catcagtttg	aaagtaggct	tcggacaaaag	gctgcaatgg	atgtccgcaa	1380
ggacaatcat	tgtctggcgc	ggtgggtgaa	ccgatggggg	gatccatccc	cgacaaggaa	1440
tcgtaccgag	ccatacagaa	gcgatacttc	agatgagcaa	gagcgacgat	gaggtcgaag	1500
aggagcagtc	cgctccccgc	ctcgcatcaa	gctgaggaaa	gggagtatat	cgcagtacga	1560
taccatttca	agcactatgc	agaggagttt	cggctcggct	ggtcttgcca	tctgctccat	1620
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tttgatgggt	atcatgccga	ggacaggccg	acgctcggag	ccgacaagca	ggaaacttctg	1740
gatccggaag	tttcgggtacg	cgtcccatcc	gatgcctggt	ggcgttcaag	aacgaatttc	1800
ccgatgtaac	ggaccggaag	aaaagctcaa	gtttacgctc	gctgcctaca	atgccggctc	1860
ggtcacgtgg	cggacgcaag	gcgtttggct	gcgaagtacg	ggggcaaccc	cacgtatggg	1920
acaataacgt	ggaggcatac	atccgcctca	agaaagaccc	aactactata	acgatcctgt	1980
ctgtcgctcc	ggctatctgc	gaggtycggg	acgatcaact	atgtacgcag	cgtaatggct	2040
cgttatcagg	catacaaaaag	aaggattgat	accactactg	catctaaaga	cagcatgttt	2100
caggcacgca	cttgaccaaa	agtttcggcg	atttggttct	cttcgaagac	ctctcttcag	2160
tatcgaacgg	ggcgaaaagg	ttggacttat	cgcacgcaac	ggcaaggga	aacgaccctg	2220
atgaatatcc	ttacgggaat	cgactcaccc	gattcggaga	agtgatctac	caaaacggta	2280
tcgcgcgtgc	atacctgcca	cagttcccca	agtacttccg	ggcagtaccg	tactggagac	2340
ctgcttcgga	caaacgatga	gatgacctcc	ctgatagcgc	aatgggagga	ggcttcggct	2400
cgggcgacgg	caaacgcatg	gaggagtgtg	tccccgaaat	ggatgccctt	gcgcgtggga	2460
gtacgaacag	cgcgcgcggg	agattctcac	ccgtctgcac	tggacgatct	gcactgcacc	2520
acggacaatc	tctccgggtg	ggagcttagc	gtatcgctct	ggcaggtagc	ctcatcgga	2580
atccggaact	gctgttttgg	acgaaccgac	caatcacctc	gatctggacg	tgatcgaatg	2640
gctggaggct	acctctcgca	tcagcagatc	ggactgcttc	tggtcaccca	cgaccctact	2700
ttctggatcg	cgtatgcaac	cgatactggg	agctggacaa	caaaagctgt	atgcctacaa	2760
aggcaactac	gaatactacc	tgaacaaacg	ggagagcggc	tggaaagccac	cgaacgcgaa	2820
acaagccgcg	cagccaacct	ccgcgcgcgc	aagcggaatg	gatgcatcgc	agaccgcagg	2880
cacgcggcac	gaagcgaaga	gccg				2904

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1215 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

acctgtatct	gtatatcctg	atttttagttg	tttttagtca	ttcaatctca	cgtagccaat	60
tttatcggtg	aacataattc	ccttttttct	tcctggtttt	gtatcattct	tcaagcctct	120
aaaatataat	catagcagat	aatgaggtct	cctgcatatg	tattgaaaaa	tcataacaaa	180
ttgcaatgat	gttaaaattt	tccattgaac	gcaacggctt	atactttagt	ctcatttttag	240
atataagaga	cgtagattat	aaaaaccatt	gcatacctacg	caaaattctt	tacgaaagcg	300
aaaaaagatg	tgtaataaaa	gtaatggaag	ctgccggggg	gcaactaactt	tacattgtta	360
tgcagaacgt	aggattaaga	ctcaaacagg	agggaacaga	aaaggctatt	ccttacagta	420
tgttgctgct	tcactgaatg	tagtaccact	acagtcctatc	ggatcgaagc	cggaaataaa	480

tatttaagta	ggagcttttc	gaccggtact	gtgaactttt	ggaactgaat	cccagagact	540
gttttcgaat	cctgcaatgg	aagaacgaga	ccggattgct	cttgagatgg	ccgaagggtt	600
atagagataa	tggagttggg	ggtaacaatt	atcctgccaa	gattatgaat	atcaatatcc	660
gacccggggc	tccggacagt	aaaatgaaca	atagatatga	tggaaagcga	tgaaataaaa	720
agcattcaag	aaaactcaaa	gatattcagg	gggtgttatc	ggagatacat	ggttttatga	780
gagactgaaa	aaagattaca	gcccggtgga	tgaagcacc	agtctggatt	cgatatgctc	840
gccatgcttt	tgaatgtctc	tcctactact	gtttaccgat	gggagcaagg	aatgagttgc	900
cctacacgat	tctgagcagc	ggagcatgtg	ctatcgattc	gacgaagtgt	acgtggccgt	960
caaagtgtgc	cggttaagag	ccgcggattc	aatcgatag	aggcattaag	gactttatcc	1020
gtctatcgga	cggtatcata	gaggggtgtg	gttttgaagc	aaaggaaaaa	gaccctngtt	1080
catatcaagg	aacaaatact	gggaaagaac	ggatgaaggg	ttgnctttat	tcaactacta	1140
tatgcctttt	cctttcaagc	ccgaagaaga	aatttcaaac	ccgctctacg	aagacaaacg	1200
agctttcctg	gtata					1215

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

tcacctccga	tacccaacga	agtcggcgag	aggagtgtta	gtttgtagag	ccgttgga	60
cacctcccca	acccagttg	aaatggaaag	taccatccaa	gcataacat	cgcaaacgaa	120
agcatgtcct	atgctctggt	tattcccgca	taatagaccg	gccttccgga	ggcaagttcc	180
ccgcggatca	tatcgtccac	tcctgtgagg	tatataaggc	gcgtacatgt	agctgcagtg	240
aacgctgtag	cgaaagtgtg	ttcgcaaggc	tcctactaca	taaacgctgt	acgtccactt	300
ccattttcat	aaaaactcat	cgaaacagat	gcactcacat	caccatcagt	gtggcgtagg	360
catccacttg	agattgagtc	agattatcaa	ggcgggattt	ccgggcatat	tgatccagtc	420
gtacatttca	ccaaatgtgc	cgaccagttg	ccaactaatg	aacctgcatg	ataatcgaaa	480
gagccttcac	ttgaagcggc	cagctatggt	agcgcatgat	ttgtgctgca	gcagtagcac	540
acagccggtg	taggcatgat	tgccattagg	aagcagtggt	tccttatttt	ccatgggtaa	600
ccttgattcc	atcgcatggg	atcgttggca	aaatgacgtt	atccatcaga	gcattgactt	660
cagccgggtac	gccttcggta	cgtaattctc	ttcattgagc	tgagcttttc	cggaaagtat	720
caggcctatt	tcctgtcgta	aatttgtagc	cacatgcgaa	gattgtccgg	catactgtcc	780
atgtgaaacg	gccaatgggt	gaataggcta	aaattgtcgg	tattctgtca	tctctgttac	840
aagagcatag	ccctcattat	ttccacgatt	agctacataa	aatatgcagg	agagccttcc	900
tcttgtgatg	tgatacccct	ctcagcatct	cttgccgata	aacgtaatcg	atggaaatct	960
tgtcagatac	tgctgtttgt	ccattcgcaa	ggataacctgt	cgcaaagcca	gccgagccag	1020
actcaaagcc	gctctttcgt	aaccggagca	gaatgtccct	gcattggcaat	gccaagaca	1080
ttactatggc	taaaagaaaa	ctttttttca	ttgaagggtga	tattccgatt	atgagagttt	1140
ttgctgtggt	cgccctatgg	ggcattgtag	aatttgtgca	ttctacaaaa	gtgtttctga	1200
tgatgtagta	ttaggatcag	gcaattgaat	gaaaaaagcc	ggaatttata	ttctttccaa	1260
tcctgccatt	tttagagctg	taacggctgc	ttccgtgcct	ttgttgccat	gcttgccccc	1320
ggccgctctt	cggcctgaag	cattgtttcc	gtggtaagga	ctccgaaaa	gatggtacaa	1380
agccgtcaat	gttcaactgg	gtgatccct	gtgttaccct	tggcagatat	agtcgaagtg	1440
gggggtgtcg	cctctgacta	cacagccgat	gcgatcactg	catctacttc	atgctgttcg	1500
gcaaggtatg	acattgcctg	gtaagttcga	aagtgcgggg	aacatgctgt	acgatgatat	1560
tgtcagccac	acaccatgct	ccaaaagggt	atcgatagcc	cctttcatca	gtggctcgtg	1620
atattgtgat	tcctttcagc	aacggcaatt	cct			1653

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

cattgcggca	cctatcagca	gcaagccgat	acctgtataa	acgccatagg	ccaatcgtct	60
ttgaccagct	ccaactccga	catcgctactc	catcgccctg	ttcgcgattg	tagctaagct	120
gatagatata	ccacctctg	taacggacgg	tttattgacc	agtatagtcg	cgctgtcgat	180
ctcgccattc	tcagcgatag	gtatacctgc	gagctgtatt	gtttcggatc	gggttctgcc	240
atcacagcga	cagactgtcc	gttaatcgta	agcttcgata	gggaaataca	tggcacccga	300
tgacacccaa	cgggatacca	cttcttgggg	aaaatctaaa	ttccagctct	tactctggct	360
gaatgtacgg	ctcccaatga	cctgaattcg	cgaagacaac	ggagtctttg	gtcacgacag	420
cagccgaata	aggcagatgc	gcaatacctc	gatctgccag	cggctctatcg	ttcccttgga	480
aggagtccga	ctatggacag	atgcgcggga	cgagaatagg	gaagagcctt	gccactattt	540
tgcgtatgat	catcaatttg	ggagggtact	ctgctatttc	gaacttttta	gttctatggc	600
tacggggagt	tccaccatth	ttttgtccgt	tggcttagcc	cctccactca	ggatagtcgg	660
agtcggaata	tacttgcaat	ctgtatgccg	gatgtcggca	gaagacataa	gcccgaaaaa	720
aagtgcgacg	aacaaccac	gtgattcatc	acgaaagcac	cgtcacgaag	gttcagtttc	780
agaccataag	cctgtctgta	gtaacgcagc	ccagtacaaa	gagcaaatac	agaacagcag	840
caggaagtac	catgccgata	gcatggagct	aagtcccaaa	cgtgaatagg	atgctgcaat	900
cctctcccca	tttctgcggg	gatttgtttg	gcagcccat	gatgactgca	agcagcagta	960
gcccaccgat	agaagtcaga	tggctatgtg	gccagataga	aaggagaaac	gggccgaatt	1020
gcggcgtatg	ctctacgatg	gaatatgccc	caaaacaaga	tgccggcaag	aagcaaaactc	1080
ctccgaccag	attgaaagga	tacagcgaaa	gctgtggcca	gtatcggcct	gcgatcacct	1140
ggagcaacaa	acctacaaaa	gcaagtcctg	atatgagaat	atgccttccc	tatagccgaa	1200
gcgtccctgc	cacatagtgt	tgtatccgaa	aaaatagtaa	acagtcttag	tgaaaagaac	1260
agatcagtct	tatctattag	accttatttg	gctgctatca	aaagaccttt	tccttttgcct	1320
ttctcaccga	cttgggcacc	actgtctcca	agaacttttc	tttgttcttg	tgaaccatc	1380
catatccaag	cctatatact	tctgggcttt	ttctttgggtg	ggacatcagg	cagtgggtacc	1440
tcattccgtat	agccatgacg	tgcaagtacc	gagctatctc	tatacgtgct	tgcacgcac	1500
gctccagccc	gttgcctgaga	tacgtgtaat	ctcttgccgt	gcatggaatg	aagctccatg	1560
agaagccatc	catagtccca	acgccactgt	gattggcgga	tatacttaag	tatgggggtca	1620
ttttcctttt	ct					1632

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1095 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1095

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

ggcttcgctg	gatgcggagt	ttgctcgcgt	ggttttttca	cttactgatc	gaagcgtggt	60
tccccgatca	ttaaaaccga	cgacggctat	catatcgtea	gctcatagag	aaacgaggcg	120
atgtgatcaa	tttccgacag	atcgtaccaa	acccaaagta	tctgatgctg	ccttgacgga	180
aactacaaac	aagctgatag	cttgactccc	ctgataaaaag	gaaataagct	gacctttgaa	240
aaagcgttgc	ccaatactct	gaagataacg	atacgcgcaa	caatcaggga	cttaggtcaa	300
taagctccag	cagagcgatt	tttatagttc	ctcccgcctc	aagacgaaga	gttgccacaa	360
gacatcagcc	gagttgtcta	caatatgaag	ccggtgaagt	ttccaagcct	tttattctca	420
aaacggacaa	aggtaatgag	gggttgtcat	cgtgaagatc	aaaaatctga	tcgaaggaca	480
ccgagccaac	tgaactccga	tttccaaacg	atcaaggcct	tagccctaaa	caaaaagaag	540
aaggagtgtg	cgatgcatgg	ataaggaaga	agcaaaaaga	aacttatacc	acatcgaacc	600
tgcctaccgc	aactgtcagt	tccgctatcc	gggctggttg	aagacagaca	ataattcggg	660
gtggaaagaa	aatctctttg	gagagaagtt	tctttctgtc	tcgagtacaa	atagatgaga	720
aaggggagaaa	aacgaaatct	cggctcggta	gccgacaact	gggggcgata	attctgatcg	780
tcacctctct	ttttctgccc	ttgcctctct	ccaaggtccc	cctcccaaag	ggataagggg	840
aaaacgcatg	tcctcctcga	acatgcggat	gaactccggt	acacagactc	tacaaccccg	900
atgtacagcg	tctgcttggc	aatgtcgtga	taagcatgaa	ggagctgtga	tgcgtgcgca	960
cagcgctcat	cttaatcagg	agagaacact	ttcgaagcat	tcggccaagt	ttccatgcag	1020
caggcgacac	gtatcatgtc	gcccgtatct	catatgatgg	aacatcaaat	acgctcgttt	1080
gcgcatgagt	gcgct					1095

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1390 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

ccacagacca	aatgggggatt	gtagccgaac	tggtattgcc	ataacgctca	tattgaccat	60
cactttctca	tatgggactc	ccatacgtcg	ggcaacggat	cgatgattcg	gaggttggcc	120
tgatgaggta	ctacccaagt	aatatcacgt	gcgaaagatt	gttgcgctcc	atgatctcca	180
cacagctgtt	gcacattcta	cgacagcatg	tttgaagact	acctgccctt	cctgatacac	240
ataatccaac	gattatccac	cgtttcgtgc	gtagcaggac	atgccgatcc	accgccttca	300
tgatcaaatg	atctttgccc	atgccattgg	agtgcagcac	agctccataa	cgcctacttc	360
ttcttcggtg	gcctcgagca	aaacacaacc	gggccatccc	cgaatagcgg	acaagtggct	420
cgatcggtat	aatccgtaaa	actgtcatct	tctccgtagc	gatcacaagg	atcttgggaat	480
aacgccccga	cggataaaat	tggtctccac	ttcaagggga	taaataaacg	tgggacagg	540
gcctgcatat	cgaaagaaaa	gatgtcgcca	caaccgattt	catgagcacg	atgctggccg	600
tgggaaggga	atgatagtgc	ctcgagttag	ttgcaagatc	aagccgtcga	tactcttggg	660
atcgatacca	tgacgttcga	agaggtttgt	gccgcacgga	tggccaaata	ggaagctcct	720
ttattcttgt	ctcgaggatc	cgacgtctct	tgatccccac	acgggtcatg	atccattcgt	780
cattgtatca	accatTTTTT	ccagatcgtc	atttggaata	acatcttcag	ggaataggcc	840
ccaacggctg	ttatagccgc	gtttatttta	ttcataatcg	aattgttgca	taatggacgg	900
gcaccggccc	tttttaaaga	ccatatcccc	cggaaaagat	tatttgtggc	cgctaaaata	960

aaaaaaaaagt	cccaaagaac	ggtctaaggg	actcttttgc	tcgttcttgc	cgcctaagcg	1020
acgaccggct	cgaccgaggg	caagcaattt	ttacactgcc	acttcttttt	cgattgccac	1080
ttaccgcggt	agtagccaca	atcaccacat	actgtgtgat	agatgtgcat	gctccacaat	1140
taggacactt	ggccaaagtc	ggcataacgg	ctttgtatga	gttctccgct	tggcggttct	1200
cgttttggac	tgtcttcttt	taggagtgcc	atttttattt	atttaaattg	ttctttttgt	1260
tccaatagtt	ttccagagaa	tcccacctcg	aatcgtgagc	ggtcataccg	gattcttctg	1320
ttgttcacgc	gcattctatc	ccagcagatc	ggacattcga	ttcatcatct	cgggtcgcac	1380
tctcatccga						1390

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

gacgatgctc	cttgctgata	atcgtagcca	taaggttacc	gccgaaagcg	gacgtgtcat	60
cagcagattg	cgttcgtcac	cgatctcaag	cgatgtacgt	ctgctgtaag	acctgtacgc	120
aagcgagaag	agagacgggg	accgagggcg	gaccaatagt	cgtagcaccg	aagagtacga	180
tctcaggctt	cttgtctgaa	gaatttggtg	aatggcctga	gcgtaaggct	cagtaaggta	240
gttctgagct	tctcatcgtc	tacgacaagc	accgtatcgg	caccggcagc	gatagttcct	300
taggcaagtc	agcaacctta	tagccacaaa	gaattgccgt	tacttttctc	cgatgggtgc	360
tgccaattca	cgagcctttc	cgatgagttc	gaggctacgt	tctgaatcac	tccttcgcgt	420
tgttctgcga	agacgaaaac	actttatata	attccttatc	catagttgct	tggtgttcag	480
atgatgaatt	ctctttcagt	ttattgaaga	taatgtcagc	agcttcttcg	ggagtgatac	540
ttcatgcagt	gctcccatgg	ccttggtctc	cttagtgaac	gacttcttac	gctcgtggga	600
gaaccggcca	aaccgattct	ttccggatca	acatcaagtc	gcttgctccc	cagcactcaa	660
taggtctgtc	gaaggtttcc	ataatgcacg	aacgcgcagt	tagcagggct	tattagccgt	720
agc						723

(2) INFORMATION FOR SEQ ID NO:1129

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3053 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3053

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

agccactcac	taatgatacg	ggttttatca	tactcgaaac	catatctggt	tttacaccgt	60
ctttcaaaaa	ttgtattttca	aaagaagttg	gtttttggca	gattcccgat	ccaacataaa	120
cgggtcgaaa	cgaagagtat	cctgagggtt	aattttaccg	aatccaatac	gatgctacgc	180
attttggcca	aagcaaaaaga	gcattgcttt	ttccacttga	attggctccg	tataaaacgg	240
ctgccgaagg	agtttgtaag	ctcctttcct	aatgacagat	ttggaaagtt	ctttatggca	300
gaagcttcca	tgctcaaagt	tttttcatct	ctgaatgagc	ggaattctta	aaagtgaagt	360
tgaccaacat	aactcacaca	ataattatct	gaggcaaaat	tatctaacaa	gcccggaaaa	420
gcaagaaaaa	cgagaaaaaa	ttcacaaaata	gcggccttgc	gttcttttga	gggagcaaaa	480
gatacaccat	agaaagattg	tagacaaaag	aagaacaaca	aatctcagag	cggaaatcgc	540
ggaaagtgcg	gccgcaatct	tgaaaaagtc	gcgccaaaat	tttttcgttt	ggttcggggt	600
ttgaaaaaat	ctgcgcgag	agcggaaatt	ttttcgccca	cgtttttagg	aatagcaaac	660
aataattttc	acggacgaga	atgcaggcga	ggagagatgg	ctgcaatgct	tttgatttgt	720
tcgtcaagga	gtaaacccgcg	caagaggttt	tgttccttct	tcctgtggcg	cgtcggagcg	780
gagggaccgc	gagggggctt	ttggcagagg	gagaagtatc	ggtcgaaaac	agttttttgt	840
ggccaaagca	cctatatctt	ttaggggtat	gagaaagaac	cgttcggcgc	attgcagctt	900
gccgtcgtgg	cagctgtcat	tataggcttg	tgatgctctc	ggcatgtgcc	aatatgggta	960
cgccggaggg	ggggccttat	atgtgacgcc	cccgcgtttg	ctcaaggcta	cgccggcaat	1020
gggtagcaca	agcaaacagg	caataagatc	tccctcctat	tcgatgaagc	tatccagaat	1080
tgaaacaaaa	cgagacggtg	atcgtctcgc	caccacagat	caaacagcga	aaatatccgt	1140
ctatggccgc	atgctgacca	tcgagctgcg	cgacaacttc	gcgacagtac	cacctatacg	1200
atcgacttta	ccaacggttt	ggccgcaaca	acgaagggaa	tatcctggaa	aacttctgct	1260
atgctttttc	caccgcgatg	tacttgattc	gatgcagatc	ggcggccggg	tgatcgatgc	1320
cctacgttgg	agccggtggc	aggtgtcttg	gtcggcattc	acgattcgga	agggatacgg	1380
ctttcacgaa	gactcctttc	ctgcgtaact	cactgacggg	aaggacggct	ccttcacggt	1440
gaaaaatctc	cacgacggcc	gctacaaaag	tttgcccttc	aggacgccga	tcgcgactac	1500
gcctatagcc	agttgtccga	ggcgttgctt	tttctccgga	ttggtaccgt	accgaggtgg	1560
cagatgatcc	ttgccttcgg	atacactctt	ggccaatgcc	gataccctta	tgccggtgat	1620
tcggcaatgg	cggaaaaaag	gaaaaacatc	actctccagg	aaacacggcc	gaatcggcgg	1680
cagcgaatat	atcgcttcgg	caacagcctg	tccggatcgc	cccgcacaac	ttctgctccg	1740
attctacacc	tccgacttcc	ggcgggaatat	ctatccaaga	aaagtctgtc	cgattccgta	1800
caagtgtctc	tacattcaac	acaagacctg	ataccattcc	ggcactgcac	ctgctgggag	1860
agaaaaggga	aaaaactggt	attcggctat	cagaaaaagg	gagaaagaga	tgtctactgg	1920
ctgacggata	aagagatcta	tagccgagac	actttggcct	ttcgggtcact	taccccaaaa	1980
gcgactcgct	caacattcca	cggccacagc	ggacaccttg	cggatggcca	agccgaaagt	2040
atccgtacag	agccgttcca	aggcgaagca	gcagcctctg	ctcctcttat	gaatatatcc	2100
atcaagatag	tagcagcata	gcatacgggt	ctccgggcga	taccatcagt	ajcatacatc	2160
ccaaccgttg	gctctcgttg	atacggcagg	cgtttccgta	gcacgcaagc	ggatagcttg	2220
tggcgcgatg	tcccgttcaa	gctccgtccc	gattgctcaa	tccgctgaag	ttcttcgtcg	2280
atgccggctg	gcagatgggg	caggctaccg	cgtacggatc	gactcggccg	tctggcgaag	2340
cgtgtacgac	cgtggaacgc	ccccgtggag	caggtgtttt	cgttccttcc	ggaggaggat	2400
ccagcagcct	gttactgaag	ttgtcgggag	aggctgacag	tactgccgta	tggaactgct	2460
gaataagggg	ggagagcccg	tagcgacaaa	gaaagcagac	ggggagaagt	cctcttcccg	2520
tacctcaagc	ccgatgtcta	ctatgcaagc	ctgtttctcg	atgagaatgg	caacggctcg	2580
tgggatgccg	gcaattacca	acaaagcagc	ccgaatgggt	gttctactac	cgccaatcgt	2640
ttaccccagg	aagaactggc	agcaggccga	agactgggta	gtcactcgtg	agcagatgcc	2700
gatcagaaac	cggaaagctat	ccgaaaggta	aaaccgcgag	agaacaaaag	cgcgacctca	2760
acaggggaata	cgaggagcga	atggctcgca	gatgaagaaa	aagagtaaga	agtaacaaag	2820
catcatatcc	ccctgcacaa	tctcgaccga	tgtagaggag	aagaatcacc	acataatgaa	2880
gcaaagattt	tgactatcgg	cataccgctc	atattcggtt	tgggagtatt	gctgtcgggt	2940
gttacggatt	cgatccgatc	aaggataaac	aaaacaagct	gaaggaagac	tcaataacgg	3000
aggcagcgag	acttcgccga	ctcctccgga	gggacagtgg	tattcgatgt	ccg	3053

(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

atatattcct	tgctcaggag	ggtgccgcaa	agctcccgga	agactttgac	ccacaaccat	60
ccgttacgca	tttgacgatt	ttgggaacaa	cccgtaccaa	tcgttcccgc	atagcgggca	120
gcggtaaagt	ttgtaattag	catccgtttt	ccggcggctg	tcgtcagcag	ttcttcgcac	180
atgtgacggg	tataaattcg	atgctcttcc	cgaatgtccg	ttcgtccatg	gcgcctgctt	240
caatgcagcc	agagcgactt	cccatgctcc	cgtcatttcg	gcgtcggcga	tcttcgtccg	300
gcgaccagtt	tatagacgga	aagacctttt	tcggctcggga	taacatcttc	ttctcccggc	360
ggatatattc	tcgcaggatc	aatgtctcga	tgtggccgca	cgtgtggcag	gcgtaccgat	420
gccgcaaccg	gcgagggctt	tcgggcttct	tcgtccgcaa	cttcccgtcc	ggcgtgctcc	480
atggccgaca	caacatggct	tccgtataaa	ggggcttggt	ctttgtttga	tggtcggctc	540
ttcgaatccg	aaaacatcga	gccggtcgc	ttcctgccat	tcgggaaact	gtccacaacg	600
gtttctcctt	cttctacagg	ctcttccatc	gatccgcgat	ggctttccag	cccgaactaa	660
cccgtctctt	cgcttttatc	ccgaaagatg	ctccctttga	gagagtatcg	ccgtcagcgt	720
ttcttcgatg	gccgctcggg	aaaggattcc	agcatacgca	cggtgaccat	tcggtagagc	780
acctttcgtc	gcgggtcagg	ctgtcggact	tttctccggt	aaggagaatg	gcaggtgggtc	840
ggttactttc	gtatcgtcca	cgctccggcg	gttaagtgtg	ccgcagttag	cttttcgacg	900
taatcgccat	aatcgggata	atctttcaga	cttctaatag	cgaagggatc	tcttcaaaga	960
tgtcttcgct	gatataccgg	tgctgtacg	gggtaggtg	gtacactttt	tctcgtacag	1020
gctttgggca	gagagagcgt	cttttccgcc	gtatatccgt	atcgcttggt	ggcttcttct	1080
gaagggcagt	cagatcgtag	agtaaagggt	gtggcacagg	attcgttgta	cggaaacgga	1140
cgaaacgatg	agtgtctcgc	gcggatccag	atctttatcg	ccctgtccgc	tgctctgcgg	1200
cttctgatg	tcgtttctcc	gatggcttga	cggagaggcc	gggtggcagc	gcattggattt	1260
tccaaacagg	tacgaccgga	aatcccggtg	ctcgatatag	cggcggcaaa	tcacgcacag	1320
agtgggtgct	gtactcttcc	cagggaataa	gcgcctccgc	gagcgatgga	gaggcgcggc	1380
tggcattgat	accgacaagc	cagtcggctt	cactgcgagc	ctgcccagag	gataaaggcg	1440
gtcgtactgc	cgcccgctcag	ccggacggga	agtccctcac	ggatagcctt	atcggtgagg	1500
gagctgatcc	acaggcgggtg	aaaggtttgc	ggcaatccaa	ataagcatag	atcaggcggg	1560
agatcaaccg	ccttcgcgctc	cggcgctcgt	ggcgacgatg	atgtgatcgc	ttcgggtcaa	1620
cacttgccga	tgataattgag	ttgcttcaag	gcggacgggt	cgtccgatag	gtcgttctct	1680
tgccgatctg	tcggacgact	aaccggaaaag	gttcgggata	atgggcagtt	gctcgcggct	1740
gtacgtcggg	aagccgtatg	cttcggcatc	gcaagggtaa	cgaggtgtcc	gaaggcccag	1800
gtaaccacat	ggcggtttccg	gagaaaacagc	cctcttcttt	gtgcgttgca	ccgacgatgc	1860
ggctatgtcg	cgggcgaccg	agggttttctc	ggcaatgata	catttcatgg	ggacgatggg	1920
taagggttag	ataaaaataac	cggccgaacg	gtggcgtccc	tccgtccggc	ggttcatgag	1980
agcggagaaa	agggctacat	cctgcgcccc	ttttgcgagg	ctgcttctgc	tcttcgttct	2040
cctgttttgc	ctgttggtttt	cggtagggcg	gtacctgacc	ggcttttgag	gggctccctt	2100
gacgcgccgg	tagcttcggt	cgtcttacct	tcattgttga	cgggctacct	gcgtctgtgc	2160
ccttcggcca	cggctttgac	ctgttcctgc	ttttggtccg	gattaagcga	taaaaacggg	2220
gacgtgctg	ctccttgctg	taacggacat	aggcctgaag	atttcgcctt	ccttatccac	2280
catatttttc	agatacaggg	tgctccttcc	gaaagggtt	tctgctgtct	ctcggtcagc	2340
tgatacttgc	aggggttgcc	ggcacgccat	acggagaatc	tgcttcgggc	ttttgagaga	2400
gtgcctgctg	tctttgaagg	aaaggttgtc	gttgaaagata	aactcgatgc	tcttttctcg	2460
gcattgacct	gaagcgtggc	atcgaacggg	ttgccgccag	cgagagcata	ccttctactt	2520
ttcacgggct	taccttcggg	cagggtcccat	gctgctgttc	ggtcagcaag	acgcttttaa	2580
tctcttgccg	aatgatccgc	ggtcggcacg	aagggcgacc	agctcatagg	tcaacgggtc	2640
gattgaacgt	agcctttgaa	gggttcggcg	tttttggggg	tcagctccac	ctgttcccca	2700
gattgcccg	atgcagcagc	gtcgcttttt	cgtcctcgct	gaaagatagc	ccatataggg	2760
aaaatcgagc	cgcggctctt	tgccggtgct	gtgatggcca	gccccagact	gc	2812

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 734 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

aggccttcta	aatctgcatt	ttgttcgcag	aatctaaaag	gcctgttcaa	agttaatacg	60
atcaagaaaa	acggaggatg	tccgtaatct	cttccgaaga	gataggctta	tcgcctgcga	120
ccgatcagat	tgagaaactc	ttcgcgatgg	tcgattcctc	aaaagctcct	gtaaaagtcac	180
tggtcgtagt	cagagatfff	gcttctccac	tccacgcac	tgcatgcaca	tgtgctgtgc	240
ttcgaaacga	cgatcacccc	gagaggggtc	agcgatttct	ggatgcactc	cttgtttgtg	300
tagtcagccg	ttcctgtacc	tgaagacgac	gggcaaatac	atcaccactc	ggggcaactt	360
gctcagtcgg	ggtatatacc	gattggggat	atgccacat	gggccttacc	gaagaacggc	420
aacatgtggg	gctcacacat	caaaagaaat	cgatgtcctt	gacgatgacc	atttgctgat	480
agtcttcttc	aacatcgctg	cgcaaggat	ggcttcagga	tcctcgttat	atcctttggc	540
agaaactgca	tgcccttagc	cacacgtagc	ggagttttga	gcagccctca	cgcttagggg	600
cttcgccgag	caacgacagt	acttgggcgt	aatgctgtgc	aagcggctgc	aggcttcttc	660
tttttctatt	tctgtcattt	gtcagttcct	tgacgaatct	tatctcgtac	gacataaatc	720
tcccgtagcat	atga					734

(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 788 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...788

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

attccctctc	gtcgtctctat	gatcccgaag	aatttttaca	tcagacgata	tccatagtcg	60
tcggatggaa	gagctgttcg	gtgtaaaacc	ccgagtgcgc	gcaatacaga	gttgatcttc	120
tccgacaaca	ttgccaccca	agtggcaaaa	tgggttttca	agggatgctc	acggaaggag	180
ccaaacacat	actcggtgga	agagtcggaa	ctatctgtac	aaagccggat	ccgctccgga	240
gttgtcctct	tgctccgcaa	tccgaggctg	agcgatgcca	tcagtgccat	gttccccgct	300
acgattggaa	cgaatatccc	ctgacggcag	acaagatgat	ccgtggatcg	aagagactcc	360
cgaagaggag	cagatattca	atctcttcat	gactacgaag	tcttgggatc	gctccatccg	420
caggagtcgg	gtattttcga	ttctttcgtg	cactcccttc	tttggcgaaa	aagagcgaag	480
gtgtcaaatt	gctacgccat	cggagttagat	agagtcctcc	agccccgtag	ccaagttctc	540
tccatctacc	ccataagctg	ggtaggagaa	gaaaaagata	ccggtacggg	ctgggcaatg	600
tgctgcaaca	aggagcatgc	gacaaactcg	aacaatgggc	gaacgtgtac	gtatgatcga	660
cgatcagcgt	atgctacagg	gactgggtcta	tctacagagc	gccgaccact	tctactatat	720
gaaaaccggt	ggcgggacgc	cggcaacttt	cagcccgtac	qaaacgcctt	acgatgcttt	780
caacacta						788

(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 752 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...752

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

tctttggg	cg	gatacttg	aa	tttgaa	attc	ctcggact	ct	tgaactgc	ag	atgtagtc	ag	60
ccttcaag	tc	gccatatt	cg	ggatccgt	tca	gatctccc	gc	agcgtatag	t	tcgttcgg	tt	120
gtaaata	tacg	cccatacg	gta	tcgtctta	caca	gaaaattc	ga	gcgtatcc	ac	tctggccg	aa	180
accggat	ccg	aaggagct	gg	atagaacc	ctc	cgatcggg	aga	cagatcat	ca	tcgcaggc	ta	240
ccgtggg	aga	gccatta	acg	aaaaaaca	aag	agaagggt	at	ctcttcata	aa	taatgtga	at	300
cgttggg	ttt	gcgtggaa	aag	gcagata	aatt	aacgcta	atc	gctcctgc	at	attgtttt	ttt	360
acggcgc	cagt	cgggcaga	aat	gagacaaa	atc	agtggccg	tc	aaaagatc	gc	tatagaag	tt	420
atcgaaa	gct	tcttcata	gt	ctctttcc	ct	tgggatgg	ga	ggaaagcc	tt	cccctcca	aa	480
gaggata	tata	gtcggtc	agc	tccgggtg	cta	tggctccc	ga	tccctga	atg	acaccgtc	gc	540
atatcgg	gatg	gccagac	ggt	tcaaggcc	aa	atagtcgg	ac	gactgctc	at	tacggac	agg	600
tcacggg	cg	tgatcttg	tc	gaatccg	agc	ttaccgag	ag	ggtctccg	gg	atcactcc	ct	660
gtccggc	atc	atcgtag	acg	gagtagcc	ac	ttttgctt	ttt	tgcaggca	aag	gatcgtcc	gc	720
atacatct	tc	ttcagta	cag	gcagcca	aag	cc						752

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 807 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...807

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

gccggga	att	tgtctccc	aa	ctccttca	ac	tgtttttc	cg	tctggaag	ac	atgctgtc	gg	60
cctgatt	gat	cttgctga	ta	cgttcttt	ct	ctttctta	ct	gcttcggc	at	tggcctgc	gc	120
ctcttc	cctc	atgcgctt	ga	tctcatct	cg	gacaaacc	gc	tggaggct	tc	gatgcgg	ata	180
ttctgct	tct	tgccggag	ct	ttgtcat	gag	ccgttac	att	caggata	ccg	ttggcat	cga	240
tgtaaac	ggt	acttcgat	ct	gcgggtgt	ctg	acggggcg	cc	ggagcaat	ac	cgtcaagt	tg	300
aaacggc	cga	tgctctta	tatt	gtccttag	cc	aaagaacg	ct	cacctga	aag	acatgaat	ct	360

ctaccgaagg	ttgattgtcc	actgctgtgg	taagatttcg	ctcttcttcg	tcgggatagt	420
ggtattggca	tcgatcaagc	ggatcatcac	cctcccatag	tctcgatacc	gagcgacaag	480
ggggtaacgt	caacagcaag	acatccttta	cctcaccggt	cagaacaccg	ccttgaatac	540
ggcaccacac	gctaccactt	cgtcgggatt	cacacccttg	gacggagctt	accgaagatc	600
ttctccacaa	tctcctgaat	agcaggaata	cgtgtggacc	acctacgaga	atcacttcat	660
cgatatcgcc	acgtgacata	ccggcacttt	caaggccggt	tcgcagggtg	ccacacatgc	720
ctgaatcaga	cgatcgccaa	ctgctcgaa	ttagcccttg	taagcgtcat	caccaagtgc	780
ttgggatgcc	gttcaccggc	atgatat				807

(2) INFORMATION FOR SEQ ID NO:1135

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

ttacccgagg	cattccatgt	atcgaatccg	ccatccaaat	agcccagtag	tgatcgaatc	60
ctacacggct	gagccttgtg	atcacttcct	gtcacgtcc	ggatctgcc	caagcaacag	120
aggttgcttc	acgtctacga	tcacgtccg	acccaagggg	cgaaatcccc	atccaaaccg	180
atgttgatcg	agcgagaatg	aagccttggg	cgaacacacc	gggagctctc	gtatcgagca	240
ccagacatcg	gacgttttgg	ctatcgcttc	gaagtccgtg	gccgagaggg	cggaagtcgg	300
cgctccatca	cgttgtcgat	gctgtcatat	cccatcttgt	tcaggctaca	ttgccccga	360
aatatgccgg	cggtggcagc	aagccctcta	tccagatgct	ataaacgctt	ccttgcccgg	420
ttgattaaga	gcgtaattaa	ccgcttttgg	ttgccaagac	tgtccactgt	ctcctgcata	480
atattcttgc	gcaggccgat	ccggcaccgt	gagccggata	tacgatgatg	tcgtccgaca	540
ggggaggatc	ttggtgtaga	gactatcata	gagcaggccg	gccagctctc	ctgtgtcaag	600
tttgctgctt	tctgcgccag	gtcaggacgg	ccgacatccc	caggaagagt	gtgtcgccac	660
tgaagagagc	cgcttcgcgt	ccgtttcgtc	gataagcagg	aagcaagagc	tttccatcgt	720
atgtccgggt	ctatgagcac	tcggatcttt	acattaccca	actcgaagat	ctgattatcc	780
tcagtactat	cgcacgaat	ccgggcttag	ccgtaggctc	ataaacaatg	ggacacctgt	840
ggcacggctc	agatcaaggt	gtccgctcac	aaagtccgca	tgaatgcgt	ctccaatatg	900
tatttgagct	ttaccccgct	gcgtttgaga	cttcgaggta	gggcgtgatt	tcacgcagtg	960
ggtcgatgat	ggcagcctct	ccatcgaagt	gatgtagtag	gcaccctggg	ctaagcagcc	1020
tgtgtaaatt	gttctacttt	catatttgct	gaatggtatt	attgcttgct	tgtcagtga	1080
agatcaacca	cctttccggc	tcgtacagct	acttttagtca	cacaatgcgc	gaagtatacg	1140
agtatggtct	ctttgagaat	gatgtatagc	cccatgcgaa	gacgaaccag	ccgaatgccg	1200
gcttgagttt	gtctccgtca	atatatggga	gagtttcatt	ccgatgaata	tcccgatgat	1260
ggcaaaagct	gttacgagag	gagaagcccc	cagtcgagac	ctgccggatt	attctctccc	1320
agaatcccaa	gagcgatttg	gctgatatga	ttacaagtga	ggtgccgata	gctgtttcat	1380
cggtaggcct	ccgaggaaga	ctaaggcagg	gatgatcaag	agcctcctcc	ggcaccgaca	1440
agccctgtga	ggttaccgac	cacaattccc	caaggagagt	cagggcataa	cggggctgtt	1500
tcggcttagg	gggtctctgg	atgctttctc	ctgcatttta	gccggtctga	tcattgtgac	1560
ggatgccgaa	gcatacgtac	ggcaaacaag	agcatcagga	gcattgttcc	gtcgatccaa	1620
aactgccggg	actcaatata	cactccggaa	tcgccggtag	cagatagctc	tcgtcaggaa	1680
tacggcgaag	atcgatggca	ggccgaaaag	cactgagtag	gaacgtccac	cagcgaacgg	1740
cggaagtatg	agatactccc	gacccactgg	tagctccccc	gataaaaaag	gaataggccg	1800
tgcccaagac	aggtctatgc	ccatcacata	tacgagtagc	ggaacgggtg	ggatactccc	1860
tcgccaccga	taaggccag	tgacaggccg	attaaaatag	atgccaaagta	actgctataa	1920
gcatacagtc	tcgggtttta	tgatgaggca	aaggatcatca	atccggaacg	gcgtacagct	1980
actttggtca	cataagggtg	attttggttag	ccctaagcga	acgatgccgg	attcttccaa	2040
ttggttgagc	agccttgaac	tacggccctg	gctgggtccca	attcatttagc	cagttgttgc	2100

tgcgtgactg	tatagtatta	ccctccacga	gttcggcttt	cttttgaatg	agggccgtag	2160
gcgttcgctc	atcttcttga	aagcaatggc	attcaccgta	tctaaagctc	ctcgaatcgc	2220
ttgtgatagg	agcggaaga	tgtagttgag	ccatcgggat	gctccttcat	aaagagggaa	2280
accttatcga	cgggcaagaa	aagatctcgg	catcgctctc	gatctccacc	ttcaccttgc	2340
ttgtctcatt	gtcaggcccc	caagaaaaga	catgatacag	ctttcgctcg	ccttgatata	2400
gagagcagga	tttctctgcc	atcctcttcg	gtacggatta	ccctcatgac	cctttgataa	2460
cgataggaat	ggaccggaca	tgtgcattct	cattgaggaa	acgctaccgg	ccttgtagac	2520
ccttgaggatg	ccatgcttat	acagtttgcc	acaagctcag	gcgaagagcg	aaactcggat	2580
atatcttcta	tctgcttata	ggagcaaaaca	taataaaaaca	agtacgcaac	cgaaagaaat	2640
ggaacgaaag	cctttcgctc	tatctcttct	ctgccgcaat	ttaatgcttg	catttgttta	2700
ttcttttttc	ctccatatgt	acctaaaaag	gatgatacat	aggccaaaaa	cacgagcgaa	2760
aaaaaatctc	aacaacgaag	atgttactcg	gatttgatgt	ggttccctcg	cgctcttgta	2820
cattccgctt	ttcaagtata	agacagcagt	cattggcaag	agaaaaagaa	ttgactaatt	2880
ttgtcttccg	aaagcattgc	tccgaacagt	gaatttcccc	gtgtattgga	agtgaagcaat	2940
aattgaaaaa	agagagttat	atattaatat	gccacacatc	cataaactac	gactatgccc	3000
catcacctga	catcaagccc	gaacaggctc	ctattcgggtc	cttcagcaca	gcagcgacag	3060
tccctgatcc	gatccgagat	tgtagaggga	atcgtgcagc	tacatcgaat	cacatgcaaa	3120
aggatagcat	cctggctagg	ccctaccaca	tacatatccg	gactgcaccc	gtcggagttc	3180
tccgtgaact	cggcggtg	ttcttttata	tcagcatcgg	aaaaggcttt	tttggcctgc	3240
gatttatata	caaaatcact	tacgatctat	atattttatca	aaacgattta	aatataaaaat	3300
gaaaacgatt	tgtatacaaa	ttgaaaacgc	ttatatacaa	atcgttgtag	ggcttgtttt	3360
aagtggaaat	tcgatctatg	gagttccttt	tccctccact	tttaccttgc	ttttctcttc	3420
tctacagata	ttatttggaa	tcgttccaaa	ctcgtcttcg	ttgttgaaaa	cttttttggg	3480
catgattttt	gagcagatta	ttattttcgt	ggctctccctt	ttttcacagg	aatagctttc	3540
agatttagta	atgttggtgc	aacgcacagc	tcggagattc	ttcttttatt	cgtaatcgtg	3600
ttaattgctt	ccgccttttag	acctttgctt	accctccatc	tctccctgcc	ttcggataac	3660
cttttatttg	ctttactttg	cgggcataat	aatttgtccg	gaatgaatcg	gtttgattat	3720
atcgagtcgg	aggcggcctt	gcgggcctct	atacggcttt	caaggcttcg	aagatggtcg	3780
ggtagctctg	ataaccaaag	ctgacatcca	tgagagcaat	tctactttgc	acaaggggga	3840
gtcgcagcgg	ttactgctgc	tgacgatgca	cggacaacca	ctataacgat	acggtcgaag	3900
caggtcgggg	cctttgtgag	atgaagccgt	aagggtactt	gccgaagagg	ctccggagcg	3960
gatcgatgat	tgatccgttg	ggggatgctg	ttcgatacgg	aagctgatgg	cctattgggtc	4020
tggggcttgc	aggcggacac	caccacaagc	ggattctgca	tcgagggttg	attctaccgg	4080
taggatgctc	acgagcttta	tgatcgatag	cgtgctcaaa	cttctgcaat	agagatattt	4140
gtcaatcacc	aagcggctga	attgcgatag	acgacctcgg	ttgccgtggc	gtacgtacat	4200
gggattgggg	acatggcgtg	aagtcgtttt	ctatggcaag	catacgggtg	tgccaccggg	4260
gggtcggctg	ccatctaccg	aagatccacc	aatccgcagg	gtaccctcgg	agtgggattg	4320
ccctctgcta	tcttgccggc	tgtgaggtgc	gcgacatgga	gttgtccaat	ttcatcccac	4380
aagctctgta	caatccgaaa	ggagaagcct	cctgatcagt	gaggccgtac	g,	4431

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

gattagtttt	tgtttcattc	gaatgaggtg	gtttttgtat	ttggagacaa	tagttacgga	60
gccaagcggg	gaacagacca	ggaagcatcg	ggccggagtc	gtacaggaag	cgatcgtgca	120
agcggctttc	gcgcccttgc	caaaattttat	tcgtaccggc	ttcacggcaa	agccacccca	180
agtgtcagga	cgtggccagt	ccgaccggca	tatttgagcg	actccttcat	gaattcctgt	240

acgataaaga	acgccccggc	ataggacgac	tctgtggcga	aatgcgcgcc	cctaccgact	300
tttgtagcga	cgtgtagcaa	aataagcatc	gctaagctcc	ggcctaaaat	acgtacatcc	360
ccctccacat	gtatctgacg	ctccagttcg	tgcagaggaa	tgtgagacag	acgtgcggat	420
tggcagccat	ttgctgcccc	tgcactctc	atagttgctg	tagaagataa	attcgttggt	480
cataaactcc	tgagcaaaac	ggttcgcgta	ctgggatgac	cgtcaggagt	agccgtccca	540
cgataacggc	tgtaggctca	tatgttttgg	cttcgaccgc	atcttgcacc	atctggtgac	600
aaggtcgaaa	ggagtaggtg	tcaggtcgct	ggcgggaaggc	ttcgttgtca	tattcccgc	660
tgatattttc	gaaatgtaaa	tccatgtttt	gnngntttta	ttgtccggac	aaagttatgc	720
cattggaatg	gtcgtccaaa	atcctt				746

(2) INFORMATION FOR SEQ ID NO:1137

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 619 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...619
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

gcccggaaca	gggaaaaaac	tcagcttcat	tgcacaagaa	atcggcagaa	aatcaatacg	60
ctcggctcca	aaagcaatca	tgtggagatg	cagcaaattgt	cgtgcagatg	aaagacgaat	120
tagaacagat	caaagagcaa	gtactgacgt	attatagcca	ttccactaca	tatttagaca	180
aaattcccca	tgaccaacta	atcatcatct	cggccccatc	cggaacagggt	aagagcaccg	240
ttatcaacga	cttcttacgg	acagagagct	taaccttcat	ttctctattt	ctgcaccagc	300
cgtgcacctc	gtggagaaga	gcagaatgga	cgagagtatt	actcttgtct	ccggaagaat	360
tcagacgaag	aatagaggcc	aacgaattcg	taagtacgaa	gaggtgtaca	gagacaaata	420
ctatggcacg	ctcaaaaagt	agtagagcgg	atcctgaaag	aagagaaaaa	tgtcattttc	480
gacgttgatg	cgttggagca	cagagcatca	agaaatatta	tggagatagg	gcattggctt	540
ctttattttg	cctccttcta	tagaagagct	gcgttctcgt	ctgcaaaacg	aggtacggac	600
tctatggaaa	ctattaagc					619

(2) INFORMATION FOR SEQ ID NO:1138

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 470 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

ggccactgtc	gtgaaatctg	tctctccgtt	cgggtgctat	gggctttatt	tctccattgt	60
cgggtgtgatc	atcttttacgg	gccttacgcg	tttcgatgga	acaaaatcaa	gcagatgctg	120
gctcaaacgc	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgcttct	tcggccgaag	240
ggactaatcc	ctccccattga	aaagacaaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atttttcatt	gaaacaccg	tagtcnatag	atctcntaca	actacattga	360
cgatcctccc	ggggactaca	atgacttttt	tcgactcttg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcggg		470

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

ccgtggctca	aaagctcttc	ccagccgcgc	tcggtgttgt	cttccgcttc	tctaccggat	60
tacgcagggc	acgatccctt	cggcgatca	gcccgatgcg	aatgtggggg	gcataccgaa	120
tgtgggagga	atctccgaag	catccagacg	cccaagcggc	cgctggtgcc	ggctccccatg	180
tagaagagtc	gcccacctgc	tccatgcgtg	gtatgatttg	ttcgaccagt	cgttcgatca	240
tcggatagtc	cggtcgacgg	cttcggccac	tttctgtgcc	tcgcggttga	tgtctcgagg	300
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cagaaaactgc	ttgaagaaat	agcgtttgtc	gttcacgtca	cgaagaaaaa	catacgggag	1980

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acgaaataga	cgataacgtc	agaatagcta	cgagaggact	catatcaaat	cattgagacg	2640
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gaggccggat	cgttatactc	taggcttatt	tcgttatgtt	ctaaggaatt	cctcgttatt	2880
ccttacggat	ttctccctac	gctctatagc	tcatttccat	acgctctagg	ggatagccaa	2940
acacaccgtt	cagcaaggaa	aagaggggcg	aaaaaaactg	taaaaacgg		2989

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

tgggttaagc	gtacatatat	acaaaggtag	cacagttttt	aattaacttg	cgtaatagcg	60
tctgtaaaac	agattggcta	aagatgttat	ttgagtcctc	tttgtagatc	gaaaaaagat	120
atgaaacaga	cttttcgctt	tatcaaacia	ttgaacggat	tactcacctg	aagccgaatg	180
ctacgatgat	gttggttttg	cttcgggtgt	ggcagtcatc	atggctaata	gttcgttgag	240
tactactatc	atgaaatttt	agagtaccct	atcaatctta	cgatcggagg	tcataggtct	300
tttctcatca	tggagagacc	atgaccttgc	tccagtttgt	gaagatgtgc	tgatggtcac	360
tt						362

(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 792 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...792

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

agacgtacat	tcacgggaaa	ccattcatag	cacggaagat	accctgaagc	ttcctgctga	60
taaggcagga	tcttgccaa	agcacgtacg	cgaccttcgc	cgtctcgctc	agaatcattt	120
cgcgcatggc	tttgatcttc	tcgccttgaa	gaacatatgc	tccgtacggc	aaagaccgat	180
acctacggca	ccgaagtgcg	agctatctcg	gcctcgtgag	gagtatcggc	attcgtagca	240
acttttagctt	ggcatactta	tcggccaaag	ccatcagatc	ggcgaaatct	tgatcatttc	300
ggcggcttttc	gtctccacct	gtccttcgta	tatctcaccg	gtaaaaccgtt	gatggagatg	360
tagtcgcctt	ctttgaagag	ggttccatcg	attctacggt	acgtgcctta	tagtcgatgt	420
tcaatgcacc	tgctcccgat	agcagcattt	gcccatacct	ctggccacta	cggcagcatg	480
cgaagtcata	ctccgcgagc	cgtcaggata	ccttcggcgg	cagacatacc	ggccaagtct	540
cgggcgaagt	ctcgatacgc	accatcacca	cacgcttgcc	atcctcttcc	actgagcggc	600
atcgtcggcg	aagaaaaaca	tctgaccggt	agcggcaccc	gcgaagcagg	caagcccttg	660
gtcagtagac	gtgctctaag	gagagcgact	tgtcgaaaaa	ggggtggagc	aattcgtcca	720
gcttggttagg	ttcgagcgca	taagggtctt	ttcctcgctg	atcataccct	gacgcaagag	780
atcctggcga	tc					792

(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 759 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

attatatattcc	aaaacgtaat	ttctcctacg	aaaaggggaa	gcaagtactc	gcaatgtatc	60
gttcacggcc	aaacaaggag	aagtcacagc	cctcgtcgtc	cgtcgggtgg	aggaaagagc	120
acatcggcca	agttggctgc	acgctttggg	atatagatgg	aggaaagatc	tttttgggag	180
gggaagacat	ttcgcaatcg	aacccgaaac	cctgctacgt	cattatgcca	tcgtcttcca	240
agatgactgc	tcttcaatgc	atcggtggcc	gataatatcc	gcataggtaa	acctatgcta	300
cagatgaaga	gctcaaactg	gtagctcggg	tggcaagatg	cgagaatttg	tagatcgtct	360
gccgaatgga	tatgacactt	tgatcgggtg	aatgggtgag	acctttcagg	agggtgaacgt	420
cagcgcattt	ctatagccag	actttactca	aggatgctcc	gattgtgctg	ctggatgaag	480
ctacggcaag	ctcgatggtg	agaatgagac	actgatacag	gccggtatat	ccgaactgac	540
aaaaacaaga	cagtcctcat	tatcgctcat	cgtatgcgca	ctgtagccat	gcccataaga	600
ttgttgtagt	caaagaaggg	actgtagccg	aatgtggagt	ccggccgaat	tgatggccat	660
gaacggtgtg	tttgctcgaa	tggtggggcg	cagaagtaag	gaaacgtgag	ttcgatgtaa	720
gcgatatggt	gccgatctca	taagatccgc	catatcgat			759

(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 671 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...671
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

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gggaattttc aagaaaccga ttaaaaacaa attaatcggc ggcacgcac ttctcccgat      60
agcctgctct attcgatgcc cgatcacaga agtctgacgt cgggggcagc atccgctata      120
atcctgcacc ctattatcgt ttggacagga cggacgtaag cggtagacg gggtcgggtac      180
acgcgctccg ctatttgggt cacttacggt caagccatac cgctcggacg agagcacgac      240
agcgatacat ctacctatcc ggttcggtag ggcaaaatct ccgactcaat ccgtgcactc      300
gctctactac cacttcacgg tgggcagtta ctttcgtcgg catcgggtaca cctcgacgaa      360
cagcgctatc tcaaagctga caatgctttg ttcaaatagg aggcacgctc cagcacagtt      420
tccaaaccct ccctccttat tttatacggg tcagaacttt ctcatccttc agactcgctg      480
gtctttcccc cattgatcac taatnccgnt ggggcacccct attcgcttcg ttccagtcca      540
ccttcacatc aatacgtatt ggggatgcca caaagaccgg atgccttttt cgaaataggc      600
tattctcgtg gtacgatcgc acaaatcggc atcttcttgg cgcatacaat ttccataaag      660
attacggcct g

```

(2) INFORMATION FOR SEQ ID NO:1144

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3295 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...3295
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

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gtctcctata aggaacggag cttttcgatg gcttccctccc tcgtataatg ggcggacgga      60
acaagccttt tttgtccaaa aacttgcgga caaaccaacg gcgggcttgc gttccccctt      120
gacatagaag catccgcaga agagaccccg cctcttagca cgcggaaagt ctctgcaaag      180
gcacggctct tgtcgggaag acgtgaaagc cattcatcga gagcacgagg tcgaaagccg      240
catcgggaaa ggcaggctgc cgacatcgcc ttgccggagc gatacgttgg ttattgctct      300
gcactgaagc gcacgcctgc tatgtcgagc atttccctgc aatgtccagc ccgacaatct      360
cggcttgggg catccgcctg tatttgtcat agtgaaaatg gctgttccta cggggacgctc      420
gagtattctg ccctcgaagt tccgggaatc atgtccagca ccgagcctgc gatgatattg      480
tcgtccgttt ccagagacag tgcatataga gccaaagacca ccatttccgt ccggtgaggc      540
atcgctcgtg tggtagtca gtcggttata ggcgtttttc tgcttcattc cattcttgat      600
tttgttcgac attctgtccc ttatgctatc acttgggata ccgaaagccg gtatccatgc      660
atcgaagcca ttaaggcaaa ggattgatag gaagaaaaat ccattcctgag atttcgattg      720
ttaaaaaactg ctctagcctg atacacaaag atatagggtt tgcccacagc atacaatcgc      780
taaaatggtg attttcacag tcttctttcg cccattttct tcccgtttct cccatcggtg      840
ccgactcctt gtaaaaaacg acagcaaacg atccaatccg gagtgtccta aaaaaaattg      900
aatccaagag caaaaaagac agcaggggaa gacgtccggt gcgttccttc ccctgctgta      960

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gttttatgat	ttgtaacctg	cggtcagaga	atcgaatcga	ggagactttc	gtctaccaga	1020
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ggcattggga	ttgctgtccc	atgagcgtcg	ggccactccg	ccatttaatc	ccaaagcatg	1140
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aagccttatg	gcgaacaaca	aaaacgaaga	cagccacctc	gtttgcaaag	cgaacaaggt	3180
ggctgcctat	atgtatgcag	ggctatggaa	accccttacc	ctcagagaac	gggatcgacg	3240
aagtcggcgg	gctataatct	gcgtcttcna	agtgtacttc	tcttgaacgt	ttcan	3295

(2) INFORMATION FOR SEQ ID NO:1145

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2828 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2828

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1145

atgtaacggc	ccgacatggt	ggaaaaatag	aagcagcagc	cgtcggagag	tgaacgtggt	60
gacgaagatg	aaagaaatcg	gcgcctcat	cggaggagag	gcaatggcgg	agtaatcctt	120
ccggagcttc	attatggacg	cgatgcattg	tgggaatagc	cctattcctc	acacatatgg	180
ccaagcgcaa	ggaggcgtga	gccgcattcg	agccgaatac	cctgcatact	ttatgagcaa	240

gcagcagtgg	acaccctg	aggtaccgat	acgcagcgtc	tgcttcagac	catgtcgaaa	300
ggtataagaa	cgaacagatc	agtaccgtgg	acggcgtgaa	gatgactttc	ccgacagctg	360
ggtacatatg	cgcaggagca	ataccgagcc	gacgtcagga	tctacaccga	agcccgtagc	420
gaaaaggaag	cacaggactt	gccgatcggt	tccgttcgga	gatagaacga	gaattgttaag	480
ccggctcctt	agaatcaaga	caacagctta	acagatcatt	cattggcaag	aaagaaaaag	540
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ccgcattgat	gatatggtga	tggttcgtgcc	tttcgctcac	cgggcgaccg	ttgcacgggt	660
caggtggtaa	agaaaaagcg	caacttatgc	agggacgaat	cgtctcgatc	gaaagccccct	720
caccgatcag	gaaagacctt	tctgtacgca	cttcaccgtc	tgccggcgga	gcaaattggca	780
gcatttccat	acgagataca	gctccgagcc	aaggagcagc	aggtgaccga	tgcttcgtgc	840
gtctgggtaa	ggtggagggtg	gaggagatgc	agccgatcct	cgatcggagc	agacggagta	900
ctaccgcaat	aagctcgaat	ttacattcag	cacaaacgtt	ggctactgcc	cgaagaggta	960
caggaagtcg	atggcgactt	tctcccaggg	tgcgatacgg	acttggaattc	catatccccg	1020
gcatgttcgc	aaggtatttg	acattcgcga	atgccacttg	ggggctaagg	tatcggacaa	1080
atacgtctct	tcatccgcga	atattgcatg	caggatccgg	agcgttacct	ttcttcgacc	1140
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gatggtagtc	gtggctctct	ttcgcaacga	gttgctgctc	gagaagctct	gcttgccggc	1260
gtggcggaac	gtttcctcag	atcacctcgc	tcctctacgt	gatcaatacc	aagtgcacg	1320
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gaaggactga	agttcaagat	cggggcttaa	gtctttctac	cgaccaatag	ccggcgaggcc	1440
taccaacttt	atcggatagc	gcgcgaattt	ccggtctcac	aggggacgaa	ctgggttacg	1500
acctctatac	cggcacggga	cgattgcgca	cttcgtagcc	ggacaagccc	atcgggtaat	1560
cggtatcgat	agctacccga	agccattgag	gatgcccgca	cgaacagcct	actgaaatgaa	1620
tagagaatac	cctcttctat	gcaggagata	tgaaagacat	cctgacaacg	acttcatcga	1680
acagcatgga	cgtccggagc	tcgtcattac	ggatcgccct	gagccggcat	gcacgagagt	1740
gtgatcgatg	ccatcctctt	tgctcaccca	ggaggatagt	ctatgtcagc	tgcaatcctg	1800
ccacacaagc	ccggattttg	ctctgctgat	ggcagatggc	agataccgag	ccgtaaaatc	1860
cctccggtgg	atatgtttcc	ccacacccac	cacgtagaga	atgtggtact	ctcgttcgaa	1920
ataccgaata	gaggtccgtg	gaagtcctcc	gacctgtaaa	atcgggcccga	cggacttgat	1980
actataaacc	cttcggattt	tatacttaaa	acccattgga	gagatctgac	aaatccttgg	2040
gtagatcgag	aaaaaactct	agtactaaat	gtgttttctg	tagaaaagtga	cgcgagaatt	2100
ttggcgctaa	accagtcgga	tatgaaatgg	cgtatgttgc	atthttgccc	acatcgtcac	2160
cggaaaaaatg	gaacctatga	ccaatccggg	tttaattgct	ctctttttgt	tctttttgtg	2220
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agagaggttg	atctcttatg	ccataagctc	tttttcggtg	gttcctgttt	cagtttgga	2340
gttggttcct	attgcgtcaa	gccggatttc	gcacagagat	caatcctttt	gggatcatgt	2400
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gaagagttgt	tcgaatacga	tggtctatth	catagtttca	tcatacaggga	gctttttctc	2520
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tttgcttcgt	tccgacagct	ttctacttac	gtgggggacg	ggctttgtct	a'caactatgt	2640
cagtgcataa	aggtagtggc	taattgtcat	aaactgcccg	aacgcctctt	tcgtagcaga	2700
tggtcggcat	tgacgactta	ctggccgtct	ggatccctct	cataagcgac	tgctgagttc	2760
ttctcccgat	cgtagaatca	ttcttaagggt	cagcccgtac	gtcatcttcg	cgatggagct	2820
gtaggaaa						2828

(2) INFORMATION FOR SEQ ID NO:1146

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1146

ttgctcttaa	gacctgcaat	gccatcatta	ttgcccccca	ccccagatca	aaaaatgctc	60
tgcacacgca	gttcgtctga	tcaaagaagc	tatcgctcgt	tcaacgtacc	ggaaggatg	120
gttcagatca	tcgaagaacc	cagcatcaga	agacgcagga	actcatgggc	gccgtagacg	180
tagtagttgc	tacgggggta	tgggcatggt	gaagtctgca	tattcttcag	gaaagccttc	240
tttcgtgttg	gagccggtaa	cgttcagggt	atcgtggata	gcaacatcga	tttcaagctg	300
ctgcagaaaa	aatcatcacc	ggctcgtgctt	tcgacaacgg	tatatctgct	caggcgaaca	360
gagcatcatc	tacaacgagg	ctgacaagga	agagttttca	cagcattccg	caaccacggt	420
gcatattttct	gtgacgaagc	caaggagatc	gggctcgtgc	agctatcttc	gaaaatggag	480
ccatcgcgaa	gatgtagtag	gtcagagcgt	tgccttcatt	gccaagaaaag	caaacatcat	540
atccccgagg	gtaccctgat	tctcgttggt	gaagctcgcg	gcgtaggaca	gaagacgtta	600
tctgtaagga	aaagatgtgt	cccgtaatgt	gcgccctagc	tacaagcact	tcgaagaagg	660
tgtagaaatc	gcacgtacga	acctcgcaac	gaaggtaacg	gccacacctg	tgctatccac	720
tccaacaatc	aggcaacatc	atcctcgtag	gatcagagct	gacggtatct	cgtatcgtag	780
tgaagctccg	agtgccacta	cagcaggcgg	tcacatncaa	aacggtcttg	ccgaaccaat	840
acgctcggat	gcggatcatg	gggtaataac	tctatctccg	agct		884

(2) INFORMATION FOR SEQ ID NO:1147

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2209 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2209

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1147

ctctagagga	tccccgacg	tatcattcct	aatctaccgg	ataggaatat	tttcttctga	60
accgtataag	cccatagata	tgatacagaa	tatcctcaag	ccataacggg	tattgtcgtc	120
ctcggcctga	ttattttatcg	tttggttgtc	tctggaagcg	aaaagattcg	ggtggagcat	180
gctccgggttg	ttcatcaaat	ccgattgtgc	cttatcttcc	aaggcgacag	agaagaagaa	240
caatcatcat	ccctcaaata	aaactctcat	gaaaacagga	cggcaatact	atccctcagt	300
atccggcagc	gaatcttctc	tatcctcatt	attttattga	tagctttgct	ctaataccgg	360
cttggtacaa	cggcatgtgg	gttttggtag	ctccttgtag	gttatcattc	ttcctgctgt	420
aggatggagc	atagctatca	tccacgctat	acggagggtga	cagaggaaca	aataatcgtc	480
aagcaaatat	ggggcaattg	gtcttcgaca	ggaaggaaat	ggaaatagtg	cccatcggca	540
ggacgatctc	aaaagctcgc	ttcgcacatt	cggcaatgga	ggtctattgg	ctatgccggg	600
tattttccgga	ataagaaact	ggggaagtac	cgtatgttgt	aacgcgcttg	aaagacttat	660
cgctgctcac	ggatcgcaac	ggcaagaaac	ggtgatcaac	ctgcgacagg	tataacccat	720
atagccggcc	gaatctcatc	atcaacgtga	gtccccaca	agggtaacct	tatctcatca	780
taatcgcttt	tagtttacgc	gccccaaatt	tccggcttat	caccctgaa	aactgggtcg	840
taaacttttt	tgttttggcg	cgagaaataa	ataattcccg	cgcagaacga	aaaacatctc	900
gcgccaaaac	gggaaaatgc	tcgcgcgcct	ttcaggaaag	gcacgcgtca	cttttttata	960
ctgacgactg	acgtgacgtg	actgaaaaaa	tgaggcttga	ggaggtcaaa	aaaagcagta	1020
attgtgaaga	acatcggaac	gtttccgac	agttttacgc	caagatcgat	attgcaactt	1080
gtaatttcaa	atagtgctgt	ttcctgattt	cgtttgactc	ttgggagcaa	tcctgaggtc	1140
gcttgcttaa	tgttgcaccg	gtggggggaa	tctgcagttg	atcacaatga	agagagtaac	1200
gaaaagttat	tgttaactttg	ccgtgttttg	agagatatga	ccatataatg	tccaatctat	1260
tagcaacaag	acgataaaaa	acaaatggaa	aacttaaaaga	acattcagcc	cagagaggat	1320
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agctgcttat	gacaaaacgc	tcaataccat	caaggaaaag	gagtggtaat	gggtagggtta	1440
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ctgcaacaga	attccgctaa	atcccgaact	caaagtggga	gacgaagtgg	aagtttatat	1560
cgagaatcgg	aagataagaa	gggccagctc	gtcttgtctc	accgcaaggc	tcgtgccttc	1620

gctcttggga	gcgcgtga	gaggtctctg	aaaaagacga	aatcgtaagg	gctatgtgaa	1680
gtgtcgtacc	aaggggtgga	tgatcgtcga	tgtatcggtg	tcgaggcttt	cctcccggga	1740
tcacagatcg	acgtgcgccc	cattgcgact	acgatgcatt	cgttgagaag	acgatggagt	1800
tcaagattgt	gaaatcaatc	aagaatataa	gaatgtagtt	gtttcccaca	aggtgctcat	1860
cgagcagagc	tcgaacaaca	gaagaaagaa	atcatcggca	agctcgaaaa	aggcaggtag	1920
tcgaagggtat	cgtcaagaat	attacttctt	acggagtatt	atcgacctcg	gtggagtggg	1980
tggtcttctc	catatcactg	acctttcatg	ggtcgtgtgg	ctcatccgga	agaaatcgta	2040
cagctggatc	agaagatcat	gtcgttatcc	tcgactttga	tgaagatcgc	aagcgtatcg	2100
ctctcggtc	aaacagctga	tgccctcatc	cttgggatgc	tctcgacagc	gagcttaggt	2160
aggcgataag	gtgaagggtg	aagttgtggt	gatggcagat	tacgggctt		2209

(2) INFORMATION FOR SEQ ID NO:1148

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1019 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1019
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1148

ccggctcactc	atgatcgaaa	gctcaatccg	gatcaaatgg	tctatcggtc	gaagtctacg	60
attatcgttc	ggcagctttg	cgcgagcatc	agctcaagcc	gcaaagcgca	atctgaatac	120
ggacatcaag	gtagacccca	acgccgtgtg	atgatatcga	aagacacggc	tttcgtagac	180
gaaagcggca	atatcacagc	gaaaccatta	cgcgctccgt	tagcagcgaa	tacgattttc	240
tcaaccatac	atcgtaacga	tctatcccga	tgagacctgc	tgggtaaatg	atttcccaat	300
gctcgtaccg	agattttatac	gagaatgtat	ttcaatcacc	cggctacgat	gattatcccg	360
tagtaggtat	ttcatgggaa	caggctcagg	cgtctgtgcg	tggcggtcgg	aattcttccg	420
caaaggtatt	cgcttgccctg	aggacagatc	atggacgact	tccgtctgcc	cactgaagcc	480
gaatgggaat	tgctgcccga	atgggcgatt	ccaacaataa	atatccctgg	agtaccgaaa	540
cttgaggaca	ggacgggggt	gtttcttggg	caacttcaag	cccggggagg	agattatacg	600
gctgacggtc	atttgatacc	gtcccgcgta	tccagttttc	gcccaatgac	ttcggttgt	660
acgatatggc	gggcaatgtg	gccgaaggac	cagcacggca	ttttcgaggt	cggactcaa	720
acaaatgtcg	gacataatcc	cgaactggaa	tacaaagctg	cgctcacgga	tcgtagatc	780
ctgagcaaaa	ggtagtacgc	ggtgggttcg	ggaaagatgt	ggcccgttcc	atcgctcggc	840
tactcgtagc	catgaatacc	agaacgtagg	tcgttcctat	atggattccg	ttgtgtaccg	900
tacttccatt	gccttctctt	ccggaaaggc	tcttaagagt	tcgcgtcgca	agcacaaagg	960
aaataagtat	tcgcccacac	atattcaaaa	caaggaaaaa	caagtattat	gggtcatta	1019

(2) INFORMATION FOR SEQ ID NO:1149

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 4232 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4232

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1149

ttgttcagct	tctcattctc	acgatagtaa	agcacctccc	ctcgcagaca	agctggttca	60
attcgggtctg	tagatactct	atgggtgtaa	gatcatttca	gctcttccct	tattcaattg	120
agccgcgaaga	gcttcgagag	agataggatg	tggtttattat	caccggcgat	tgtgggaaga	180
gcttcgtaca	atccctatct	ttttctgtga	tctgaattga	tttactcctg	cttgcgacaa	240
cttctgcacc	cgctcattca	gatagttgag	cgcatgtacg	gcactattcg	ccttggtctt	300
aaggatacat	agattttcttc	caatactcca	ttctcggtcg	cacgcctaag	gtttgctgct	360
tagcgcgccgt	ttcatcggca	tgagtctgaa	tgtaattgta	tcgtctgtgg	tctgtggtgt	420
gtccttgcca	tcaggatttc	cccaacggac	atacaacgat	tgcaaggcata	ggctatctgt	480
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actaagaaatg	gttggtttacc	cgaagaatga	tttcccaata	gcattacttt	gcaaaatggg	780
tgattttcaac	tgaagtcttt	ttctgttttt	ctttttcttt	ttcaagaaga	gcttaatctc	840
cggcaaatga	ttatcataag	gagagagtat	caagcctgat	gagcaacaaa	tggattgtca	900
tggattctca	gtttttctaa	agtttgctcc	aaatcggagc	caatagctta	atatcatcaa	960
tagattgaat	atcattgccc	aaacatcaag	ttttctcaaa	accttttagtc	tgtctagtcc	1020
ttccagcttc	tgattttggt	gcgccttaga	ctaagccttg	ttaaggaagc	aagaccataa	1080
gaccctccag	cttacggatt	tggttatcca	aaagataaag	ctccgctagg	acgtgagacg	1140
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agactatcca	ggccctctag	tttacgattt	ggttacttct	tagacgaagc	tttgtaaacg	1260
agggtgagacg	ttccggccct	ccagcttacg	gatttggtta	tccaaaagat	aaagctccgc	1320
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agtttactga	tttggtatcc	aaaagataaa	gctccgctaa	cgaggtgaga	cgttccagac	1860
ccctagctta	ctgatttggt	tatcggagag	agaaagtttt	gttagcgagg	tagactatcc	1920
aggccctcta	gtttactgat	ctggttactt	cttagacgaa	ctttgttaac	gaagtgagac	1980
gttccagacc	ctctagttta	cggatttggt	acccgatagt	tcaagcggtg	ctaaggacgt	2040
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gacgtgaacg	ttccagacct	tccagcttac	ggatttggtt	atccaaaaga	taaagcccg	2160
taacgaggtg	agacgttcca	gaccctctag	cttactgatt	tggtttcgga	gagagaaagt	2220
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gaagttttgt	taacgaagta	agagttctag	accctctagc	ttactgattt	ggttatacga	2340
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cctcaaaggt	ataataaccg	aacagaaaag	aaaaagccaa	tagcgggtact	tagctctttt	2640
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gacatcgggt	ggctatcaag	cattttacaa	tcaagctctt	gcaacaaaca	gaagcaatgt	2760
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ttttgctaca	tttgcaagcc	gagaaaagtc	cacacaaaag	ataaacggct	atatatcaga	2880
gctattccac	cgcagaacag	cataacgaaa	cgactcaatg	atcagcaaca	tgtactccga	2940
ttcgctcata	cgaccaacgc	accggggcag	atcgctccgg	tgcattcatt	acatgctacc	3000
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acctgcaaac	agataaggca	cgcactcatt	cgtgggtgaa	tcgggtgcgt	gcctctttta	3120
tataagctcg	ggaatggcct	tttgagccgt	ccgaactata	tataaatcag	atacgatctg	3180
tatacaatgg	aaaacgattt	gtatataaaa	cgaaaacgat	ctgtatataa	atcgttttga	3240
tctatatata	gatcgtcttt	caaagagttt	gaaagcatgg	tccaaactgaa	aaagttcgct	3300
tttctgtctt	ttttacttca	ggatctcctt	ccttcaggtg	cttatttgga	atgattccaa	3360
actcgtcttc	gttggttga	atttttcggt	ctgtattttt	ggcctttttg	cccaaaatca	3420
ttctctatcg	accgtcgccc	atagatgctt	catggcgcgc	tcttcttgac	ggatacgaag	3480
aagaggatag	cgagatagac	gggcattccg	acacagaag	taatccaaca	ttgcaaagga	3540

gggtgatacc	gataagctc	ggaatgacgt	tgaggaatag	ttgggatggc	gtaccgtctt	3600
gaacaggaag	ctcgtttcga	tacgatatcg	ggtacgatat	agagcttcag	cgtccacaca	3660
tccctcagct	tatatgtgacg	aagaagagca	tggcataggc	aaaaaccaag	atcgctacgc	3720
cccaccggat	agcgtattga	actcgactcc	cgtggcatac	gcttcgtaca	gggagtgaag	3780
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ggtttcggtc	ccatctgggg	cttttgccgt	ccatccacga	ttcctgaaca	gcaggatgcc	4080
gtttacgcct	tgtacgatag	taaccctttc	gtcatcataa	tgttcgttac	actcataatt	4140
atatgttttc	tggttattga	ttccgtgtga	tcggattgcg	gatatngggg	tttggtacat	4200
ttgaatacca	acagttagca	gcatacctgaa	tc			4232

(2) INFORMATION FOR SEQ ID NO:1150

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1150

gctcctcatc	gaatgattcg	gtcatctctg	tccgaacctc	ctgaatgttt	tttgaggttg	60
ttcctgctta	ttgcggattc	cccttaatgt	aaaccggctt	ccgatccgac	agtagatgtt	120
gccatcgggc	gcgtcggagg	taccacttcg	tctgttcggg	cttgtcttcc	gtgatagttg	180
gagcagtggt	ctcgggtggc	gtcgtgtctc	cccgatactc	ggctgagggt	ggacagagga	240
ctgtgtggag	caacgggatg	ctgctctttg	gccggagccg	gccggggaga	taccatccgc	300
tcaccacggg	atttgcgtgc	tgtgtcccat	gggtcggagg	cgggcagtca	gtcccttgct	360
aaataaagcc	gcgatattca	tcagcgacaa	ctcaacaaca	gacgcttgcc	attgctctgg	420
cgatactgct	ggtcacaggc	atcagtatct	tgagcgattg	gtataagaaa	gaagtcggggc	480
aacgtgctgc	atatccacat	atcgctgtat	gactacttcg	gactgctcca	acagcggcag	540
gtagaagcgt	cctgagccat	catcaaactc	cggaagaaag	aagccaatcg	ctcacgatca	600
cctgtccgtc	gaatcccttg	gcaagcaatt	cgtccaaacg	atcaatacgg	atcggtaatc	660
cccctgtaaa	aagaaatccg	tcagacgaaa	taataatcgt	agtcgaggat	attcagattc	720
tctatcgtat	tggcaaggta	atattgcctt	ccgaaaaacg	ggcaatgcgg	tcgaagagcg	780
aaaggcatcg	cgcataccctc	catcggcttt	tgtcgtctatt	atagccaaaag	cttggcttcg	840
gcttttatcc	cctcgtctgc	tgtactgtag	cgcaaattgtt	gcctatttcgg	gcccgtggta	900
ttcgtttgaa	gtcgaatatac	tgaccagcgc	ggagaatagt	gggcaggatc	tttgtgcttc	960
tctgtggtag	ccaatataaa	atcacataag	aaggcggttc	ttcgagagtc	ttcaggaaaag	1020
cattgaaggt	tgtcgcgaga	gcatgtgtac	ctcgtcgatg	atgtagatct	tgtattttcg	1080
atctgtggcg	gcacattggc	ctgctctatc	aagagacgaa	tatcatcacc	gaattgttcg	1140
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atgcgtgcac	aagatgtctt	cccacccac	gcgggccaca	aaagagatag	gcgtgagctg	1320
tctttgctgt	acgatggagg	ttttgagtgt	agcggacaat	gcctcctgac	cgccatcgag	1380
gcaaaagaat	cggggcgata	tttgagtgtca	gatacgtatg	attcgtttcc	atgagccgag	1440
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gaactctcgc	gacatagccc	acgatgcttt	cagtgaaaaa	aaacgtacaa	tatcaatgca	1560
aggcacaacc	ttacactttct	ctcttatctg	agtaaagaaa	tcattgccct	tgtcatcacc	1620
agaataaagg	ccgggaagtc	ctccacttcg	atcttccaaa	tagcctcata	cccagctcgg	1680
gatattccag	acactccact	ttcttaatgc	tgtccgagcc	agaatagctg	ctgggcctcc	1740
aacactgccg	aggtagaatc	cgctactctc	ttacacgcac	ccgtcacttg	ctgagagcgg	1800
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cctacggccc	gctgtcgtag	gcccgaacga	accgctcggc	atcccccttcg	ggtcttgccc	1920
ggaccggcgt	agtagatggg	atgattcttg	atatagtcgg	caaaccctcg	ccacggtcga	1980
tacgttcttt	tagtttgccg	tgagcaatac	acgccccacg	ataatcgtag	cactgagaga	2040
caaacgggtg	gaaacaggta	ctgcgacagc	tctctcagaa	tctcaggcat	cggacgattc	2100
agatcgactt	gaccaccgta	ccctctgtac	cctcacgcat	ggattcaggg	atgaggggtg	2160
gggattggtc	tccatctttt	cgatccagat	accgtcttta	ttgatttttg	cttgatattg	2220
cggctctgcc	aacaactgac	gcccatacct	acggacagct	tgctccatgt	cggggcaggc	2280
ggatgatgcg	cacgtcgtgt	gcgagtattt	gcctccaaac	tgagcaccca	gtcccagatg	2340
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tgcccgaagt	aggcagattg	tcgtagtact	tggccgaagc	cagcttgacg	tcttgagggt	2460
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ccgagagAAC	tcatcttatc	cacgaggagt	tcaccagcgt	cttgggggtg	agcagtgcct	2580
tcgtttcctg	atagagaacg	tcttattggc	cgacctctct	cctttggcta	tcagagaaaa	2640
gtcgtatcca	tgccgtccac	ggccatcagg	tcgatctgtg	cgggcaggtt	gcacccgtat	2700
tcacctcctt	atacatatcc	aaaggagcat	tctgcgaata	gcgcgggtct	cctgcgtata	2760
ggtatcatag	acaccatgcg	agagctgctc	ttctcatgac	cgcccgctca	gacctgctgt	2820
cccttcttac	cgaggatgat	agcgtgcccg	tatcttgcca	gaaagggagc	tgtcccttgg	2880
ctgaaacctc	ccattgcgca	ggaaagtcaa	agccacgaat	ttgtcgtttt	cgctggcttc	2940
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catgaaaagc	cgctccgcga	agtaatcgca	gagcttccgc	tccactttca	ggacatcatg	3060
atcgccaaac	ttgtccacgg	acacatatcc	ttcgctcagca	aataatactc	tgtcgtatca	3120
tcccccatag	ggaaagcttc	tgatacttaa	attctggagt	tgccatagta	attgtaacta	3180
ttgttttaaa	gtgataatcg	gttctttttt	cggtctccca	tcgaggacat	ttcctatcga	3240
tgcatttgga	gtatttcttc	tgccggaggca	tttgctatatt	cccagagaaa	ggcagacaga	3300
gacagtcatg	ataatgtcgt	cgaaggaatt	cgagtgatgc	gattgcagtt	gtaccgtcct	3360
acagtcgcat	cgcatatcgg	gagatcatga	ccgcacagaa	agcctctccc	acaacgggga	3420
cagactttcc	gcggtagttt	cccgaagagt	tcaggctcat	atctcag		3467

(2) INFORMATION FOR SEQ ID NO:1151

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1151

gctacagaca	ccgtgtcagc	aagctgatgt	ttctcggcag	cacctgtatt	acccgcgcga	60
tgcccgtcag	ccgatgcgtg	aggaagaatt	gctgacagtc	cgctggaata	taccaacgag	120
ccatacgcca	tagccaaaat	cgcaggatga	agatgtgcga	gagcttcaac	ctccaatacg	180
gcaccaatta	tatagcgtga	tgccgaccaa	cctgtacggg	cccaacgaca	atttcgattt	240
ggagcaagcc	atgtgcttcc	ggccatgatc	aggaagattt	acttggccga	tcgctgcttc	300
gccacgatga	ggaaagccgt	tccgcacgga	tttgtccata	cgtctgtcga	aagcatcgac	360
ngatcttctt	ctttcaatga	tattctctca	ttctgaagcg	gtacngcatc	accgccgaaa	

420

(2) INFORMATION FOR SEQ ID NO:1152

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4334 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...4334

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1152

aatcgtttta	tgcttgagca	cataacctgt	gacgaaatcg	aaaacgtcat	attgatggcc	60
atataataaa	gtaatgtcgc	agctgtatct	tgtttgactc	gatgtcaggc	aggattcctc	120
ctgcatcttc	tacacgtctt	ccggcagagt	gtaaaagatt	ttgtgcagac	tgtcagggaat	180
ggccgttgcc	ataccttccg	attggtgcgg	ctgtagtcca	aacgctgaat	acaacgtccg	240
cttgatgta	gtacttggcc	gtagtcaatt	tgatcacgcc	gttgatgggt	agctacgagt	300
cgtttgtaca	agccctttgc	catagctctt	ttgtcccatc	agtcagccct	gtccatatcc	360
tgcatgtctc	cggctacaat	ctccgaggaa	gagccgattg	tccatcgatc	aggactacta	420
tcgggagttt	cgtgtcgatc	gttcagtcga	tggtcgaaat	acggacgccg	actctgcaat	480
gcgacctttg	tcgttaccac	ctctttgccc	ttagggacga	acagattgac	tatctcgatg	540
cagcctgcat	cagtccgcca	ccattgcttc	ttaaatccaa	aatgagactt	tcgctccttg	600
tttgtcacga	agatccaaca	aggccgtgcg	cacctctctg	cacttttgtc	cgtaaagttg	660
ttcaagcgga	tatatcctat	cgagcctcga	gcattccgct	gtaagtgcgc	gaattcataa	720
tcactttttg	acgttcacgg	aaaaagtagc	aggtttgggt	tcgccatagc	gcattactgt	780
caccttgcaa	cagtaccggc	tatccctttc	agtgccttgg	ttactttcgg	tgtgtggatt	840
tgcggaagtc	tttcccatcg	atagtcagga	tgcggtcgcc	tgtatcaatc	ctgcttcgtc	900
tgcgggcata	ccttccatag	gtctctggat	atcacagcac	tatccgggcg	ctgcgatatg	960
atagctccga	ctccggcata	tctcccgtag	tcatacaattt	cagttcatcc	atttcctcgt	1020
aaggaatggt	tcggtatagg	ggtcaagccc	gcccacatc	gcattctatac	cacgccgatc	1080
atatgtttga	tacttatggt	atcgacgaaa	tacagcctga	cgttaccata	atattgctaa	1140
gcacatccat	cgactgtaca	tactcattgc	ggctccatct	tcttcggtga	gtttgttcgt	1200
cttggaacttc	tgtgcacagg	cagtctaaaa	ctaccggtga	taaagatcac	cagcagagat	1260
aaaaacagat	tggttttttc	atgcgcgcta	aggtacaaaa	ctttcgtagt	actatttttg	1320
atcgggcaat	cgcatctcag	ccactaacgt	gcattctaaag	ctcatgattg	ctcaccgat	1380
tatcaaaaca	gtgcgaattc	atatgtcaga	gattcaaatc	aagaggaaaag	agactaaaaa	1440
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agccggatga	ttattggagc	cggagggtgt	atcggtcgt	atggacgcaa	tgtgaataga	1620
cggtacagcg	tggcgcacaa	ggtgcataca	cggggagcaa	ggcgatgttg	gagaagcaca	1680
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gacgtactga	aaattaagtc	ttatcaaaag	acatttggtg	cggctttgac	cgctctactt	1860
ttattccacg	agcgattaac	gcaactcttc	ttcgatcaca	cggaactcgg	tcgacggttc	1920
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catcgccttc	cttcaggaaa	tcgtgccgtc	ggcaattttg	gctgtcaccg	tcttggggac	2040
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gtcggcatgc	gaacccaatt	cgatccgaat	atccggattg	tccgtaggat	acgaatcagt	2220
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cagcgtggct	ttgaaaatat	ccagtcctcc	cagccggcgt	gtccgtccga	agcgaagaaa	2820
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ccatagctac	cgcctatatt	gctgacgaaa	tacaggtaat	cgccggatgc	gacatagagg	3000
gatgagcagc	catacggagc	gaatcgcgca	taatgtcccc	agcgaaccgt	tgctccaacc	3060

gccttctccg	ctccgagcgg	cggaataatc	tgtaccgtac	ggtcgtaatc	ggctccttgc	3120
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gtcgccccgt	gccgaattcc	atcggcagct	cgccgtatcc	ggtaacgtgt	aggatattcc	3420
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agcttccaga	tatccacgga	agagtacctc	ggcttcctta	tagttacccc	ttgctgataa	3540
gtctgtgcca	aacggagcag	taccacagaa	tccggatccc	gtagcgtctg	gcattcagat	3600
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cgtataagct	ttcattccac	ctgctttcgt	cggttacgcc	tgtataatgt	attgtacata	3720
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tgtccgctgt	acatattaag	aagaaaaggg	aaggctatgg	gatatgaatc	agtttgtgca	3900
tctgtatgct	cagacgcaa	caggaaaagc	cttgacgaac	tcgacgcagc	gagtgatggc	3960
agaaggatcg	gctccatggc	atcgtctccc	cgaagatgg	ggctgacaag	ataatgctag	4020
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caggaaatat	agtctatacc	tttggtacgg	ggcgagttcc	gttggtctct	atagcttgaa	4200
agtaaccaag	cctggaaaat	aagccgtagc	ttcttctgta	agttgcagag	tcggttctcc	4260
accgtccaaa	tgagaaagcg	tgtgggataa	tgttcgatac	tcggggcaat	ctctccaatg	4320
acattttttt	ccgg					4334

(2) INFORMATION FOR SEQ ID NO:1153

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1153

tcgatgacga	actcgtcgtg	gacgatatgc	cggctgacag	tctctccgcg	acatggccga	60
atcggacagc	tcggccggcg	tcttcgcccc	tgctgccctc	atcatcccgt	cctcctccgt	120
gccaaactcg	acgagcaggc	tgccaccacc	gtttgcgagc	cgcgcgaggt	gcattcctgc	180
cgagtgtgct	ggtatcgag	gatggaacac	gggattctca	cgttttttga	atggatcgga	240
ctatagccct	tcagcgagca	gtttcggaac	cgtcgggggg	aatacgtcag	tctgatctga	300
gtatccccat	cttttcggga	ttcagccttg	tgagccatct	gcgcaggcgc	gtgccgaacg	360
cagggcggca	atcgtccgac	ggggcgaagc	gggcgcaggc	tctacagcga	gatcgcccaa	420
gccatggccg	accgggatgc	cctctggcct	cctaccgcca	ggcgaaggag	cataccgacg	480
ccatgcaaac	gcttacgaag	ccgtcttgca	gcgttatgag	gaggggctga	atacggccac	540
gacctgacca	ctcaggccaa	tcggctcctg	gatgcccgtg	tgacgcgatg	agagcggcca	600
tgacctaccg	gctcaaatgc	aaactcatag	cctattaggc	tgcccttcgg	actaaagctt	660
ttcttttctc	ccgttcgtat	caaactctacc	atcatggata	gaaaaataga	aaaaaagaag	720
acgctcatcc	cccgtaatat	tatccctatg	cagggggagc	aatagtaata	ctgccttg	780
cggctgggccc	gtattcggca	atcacagcac	caagttcaga	gccgaacgcg	cttggaattca	840
gcattcgaca						850

(2) INFORMATION FOR SEQ ID NO:1154

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1461 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1461

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1154

tcgacttcga	gctcgggtacc	ctgcaaggag	catttttcgcc	taccatatag	gaatgatgtg	60
actcgatgat	ggcattttcta	tgcctttttcc	cttgatagat	cacgcaaaag	cgtagcagaa	120
tcctccagcc	gcttttctctc	catcacaact	caggtagccg	acggaatatc	agttcagtc	180
atcctatcgt	agcaggggta	aagctgtgga	gaatataagc	gaacgacttc	gattgatcag	240
gtattacgta	cgacattgtc	acagactata	taggcaccca	tagaggccaa	tgctttccga	300
atgtgccgac	cagatagctc	attttcccaa	tggtagcagt	ctctccgcca	agcctaaacc	360
ggtttttccc	cttactccta	tggcatgagc	ttgtccacat	atagctcgac	ggtaggggat	420
agctctttga	gatcaaccaa	gatgggagat	cggccacatc	gccgtccata	ctatatatac	480
tctctactgc	atgatgatcc	ggctgtatag	atctttattc	ttgtggagga	tccgctccaa	540
tgctccggat	cattgtgccg	aaatcgctcg	aaaggcggtc	cacagagtgg	atgccatcta	600
tgatgctggc	atgaactaat	ctgtctggca	cgatcaagtc	cgttcatcca	caagagccgg	660
tagaacgcct	gtgttgagtg	gtaaccctgt	tgaatatcag	agaagattcg	cgtccgaatc	720
gttccgctat	catccctcca	atctgtcata	tgccgtacta	ttgcccgatg	gcagacggga	780
ggaaagctgc	ccggaagtcg	atcctctcca	gagatagagg	tataaaactc	atcatcagat	840
cttcccagag	agtcagtcgc	agataatcgt	tcgaggagag	gtgagcattc	gtctttcctc	900
ctcgatgatg	tagctgccat	cgtgtatcag	atcctaagct	gcctgagact	cccgttttct	960
tccagctctt	gcagctctgc	ctatattttt	cgttcattca	ggttttttga	ttgtctgttc	1020
cgattttcta	gtattgtatt	cggaagcatt	atgctgtcag	gtgataatga	gatacaaaat	1080
aaacaaacgg	gaaagacccg	atttatagat	ttaacgtcag	ttcggcgaag	aaaacgccaa	1140
tgtattcggt	ccaagattag	cggttaacgc	actaattttt	ggaagttata	ggttgttctg	1200
ttcaggcaat	tgtatagggg	gcaatctgct	tctgcctgga	tcgaaccaac	attgaaattc	1260
ggattgcttt	tgacgaatgt	tgcagtccgt	atagggagat	gggctatacc	acagggcgag	1320
tgggggtact	cgtagaggat	gacgagctat	cccgtacggc	tcttcgagct	acctgtagag	1380
ctcggcgagg	tacgccctac	agcgtagcga	gccgagccgt	aagttccgct	ccgtgagccg	1440
tagaggtggc	cgagctgagc	c				1461

(2) INFORMATION FOR SEQ ID NO:1155

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2913 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2913
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1155

cgctgccag	cattctatct	acccaatctt	cgaacaggaa	tcccaaaata	cggccggaac	60
cagtgcctatc	aatagcttcc	aatagagatc	gaagcgacca	taaattcttt	ccctttgcct	120
tgccctaaag	ctcgtggagc	cacgggaaac	aaaagaaacg	tttccggtac	agcaccagaa	180
cggataggat	ggcaccaact	gtatcatcac	ggtgaaggct	ctgacaaaag	aagtgttttc	240
caccccattha	tgcttccggc	gataatcatg	tgctccggtg	aagaaaccgg	aagaactcgg	300
tcagcccttc	gactatggct	aaaacgatgg	cttgtagaat	ggtatattat	catgcaggaa	360
gagaggta	tccttctcgg	atcaggcata	gattactccc	ccacaacgtg	cggtttgcg	420
tctgatcggc	agaaggaccc	tgccggagag	ttacttgcca	ttgtcttttt	tatccggcga	480
taccatgatg	catataccat	cagtaacgaag	ccggccatgc	tcacccacgg	tgctatctga	540
tgcgtttggc	actgaaaata	tcgggattga	agcttacttg	gtcggctgtc	ctccccctga	600
catcaatatg	aagcccagaa	tgatgaggat	agcggacccc	ccatcaagat	aaagttcttt	660
ttcccgaaaa	gcatagtatg	ctgtttattg	tcttagttgg	tttgtcaata	ttccttgcc	720
tatacgaggt	gcatttgctt	ccatccatgc	ggatataatt	gttcggttgc	gcacgtgccg	780
aaaagcagag	atcagtatac	ctacaagtaa	catgccttcg	gctatgggtc	ggagttttcc	840
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caaggctgat	agagcgagca	gaacgagacc	gatacggcgt	gtattgcgtg	tactatgtcg	1140
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tggttttcag	actgtccgga	tgggttattg	ggctttgagg	tgaacgcaca	tttccgcttg	1260
caggggatta	tagcgagcat	cttggccgga	tcgtcttcgc	ccaattcttt	tttcatctct	1320
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cgggtggcctg	tcattgtttc	ccaaaaggcc	aaaaccccca	atttctccgc	aaaaatagta	1740
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aacccaaatg	aaaccaaaga	cagattatct	tcagacgatg	ctcaatggcg	tttttttgac	2760
gtccttagat	aaaggagcaa	aggaaattca	tttgcttttc	aaactccttt	cagactaact	2820
gaattgttcc	agcgggtcgt	gcggatatga	atcaatccgt	atcaacagtc	ttatttccaa	2880
ctatttaaatg	atggtgtttg	tcgtattgca	acc			2913

(2) INFORMATION FOR SEQ ID NO:1156

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3080 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...3080

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1156

gcaggcgcat	tcatacacaga	cctgaagatc	ggctactggc	tcggcaccag	ccgaagagtc	60
aggagaagt	gaagttcctc	ggcgttctgg	tagcttcgtc	accgtagccg	gtgtgatgat	120
gatacctgaac	aagacctatg	gctttacggc	gatacaggctc	tggtagctcc	gcaggccaat	180
gcgatggcag	ccgtgacaag	ccgctgatgg	aaggcggtaa	tacgccttgg	attctctatg	240
gcgtagagct	atactggctc	tgatcctgac	gagtataggc	gtgcccgcac	tgcccttgca	300
ctgggtatgt	ttatcccgtt	acaactaaat	acacctctcc	tcacggcgga	ctcgtcagct	360
ggttcgtcag	cacccgctcg	aaggacgctt	cttcaataaa	ttccgcaagg	aacgcggtac	420
gctcatcgct	tccggattca	tgccggagga	gctttgatgg	gtgtggtaag	tgcgatcctc	480
aaatacatgg	gttcgatgct	tttgcccaag	aatggcacgc	catggcaggc	gccgaatggt	540
ggccatcggc	atgtatgcgc	tcatacttct	ctacttcac	gtcgacagat	cagaggcaag	600
aaacatgaag	cataacaacg	aaacaaagaa	tatggaatga	aagagagatt	tctccgatat	660
gtaggcttcg	atacgcaaag	cgacgatcct	ctaccacttt	ccccctgacg	gacaagcaat	720
tggtgctgct	gcgtcttttg	ccaaagagat	gaaggacctc	ggcctgtgcg	aggctgaaat	780
ggacagcacg	gctatgtcat	gggcagcatc	cctgcctctc	ccggttggtga	gcagcgcccg	840
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gcaaatcatc	aaaaactata	atggcgcgga	tttcgtctga	acgaggaact	gactatgcgt	960
gtagcggatt	tccccgagtt	gcgttcttca	aagggcatac	gctgatcact	acggacggta	1020
ccactctgcc	ggtgcccgat	acaaagccgg	tgtggccgaa	atcatgacgg	ctgccgagat	1080
ctgctcgcac	atcccgaagt	caagcatggc	aagattcgcc	tcggattact	cccagcaggg	1140
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gatggacggc	agtatggaag	gagagtggag	tatgagaact	tcaatgcggc	ttcggccaaa	1260
ctgaccgtaa	acggcgcaat	atccaccccc	gctatgccaa	gggaaagatg	gtcaattcgc	1320
tgcggtagt	tgcgatctgc	atgctcttct	gcccggagct	atgcggcccg	agctactgcc	1380
ggctacgaag	gatttttcca	ccttatcggc	atcaacggtt	cgtagagaaa	gcacggtcat	1440
cttatatcat	ccgcgatcac	gaccgcaaac	ctttgaagag	aagaaagagc	tgatcaaagc	1500
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cagtattaaa	tatgcgagag	atggtayagc	ctcatcccga	gattatcgaa	aaagccatgc	1620
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gccagactct	cttatatggg	actcccgtgc	ccgaaatatt	tgccggtggg	atgaacttcc	1740
acggcaagtt	cgaatactgt	tcgccgactc	catgcggcgg	gctgtggaca	cgatctgcca	1800
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acatcattaa	tagagaatgg	tttggggcct	cggagggaaa	gcctgcacaa	tgggttttcc	1920
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tccttgatcat	aggagccgag	gccttggttg	ccctgtcctg	caatatctct	gtgctgcagg	2100
cgtggggata	tcagcggttg	cgatgatgat	cgcgctcgaca	tcagcaatct	ccaacgcaag	2160
tgctcttttc	cgaagccgat	ttgggacagc	ccaaagccat	tgccgagtag	ctcgtttgca	2220
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gagatgttgg	ccggcgagtg	caacttatta	tcgatgcttc	ggacaatgct	gagacgcgct	2340
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aggcgcgggc	aattcactgt	cttcggttat	ggccatccgg	tgcgttattc	gatcttttcc	2460
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cgttggatcc	tatgatggca	gccgaagcat	caaaatcctc	ttgggaagac	ccgccgaaga	2580
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tattagaatc	ctactaatct	gcttaatcaa	aataattccg	attccccctc	cccaaaacca	2700
tgctcttcaa	tctgatcgtc	gatcaaggcc	aattctgcct	gtaagttgct	ttcgtccgaa	2760
ataatagtat	agagagcatt	tcctttctgc	cggaaaagcc	ggacaggcac	tcagccatct	2820
cgctcgctcct	caccgtttcg	acaggctatc	tactcatctg	tggggcttcc	cgacgaagag	2880
gctgaagcta	tgtgagaagt	tgtgcagctg	cttcccttgat	gatggggact	gagacccccg	2940
accccttcgc	ctgcaatatg	atcgccgcac	tttgggtgcc	gaccgactgc	tgcggtggtc	3000
ggagcgcata	gtctctatcc	gaataccgaa	ttgctggtat	cgacgccggt	actgccatca	3060
cttatgaacg	agtatccggg					3080

(2) INFORMATION FOR SEQ ID NO:1157

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 840 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...840
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1157

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gcacatggta tcgttggtcca tattgtccag catgattatg tctgcaccaa gcgtactgct      60
tcttcgacct cagccaaatt agacgtttcc acttcaggtt gatcgagaga gggagtgtct      120
ttctcgccgc ttcataggct tgggggtacc tccggctacc ttgatgtgat tgtccttgag      180
cataatcata tcatagggtc catgcatgta ttatgtccac cgccatggcg aacggccatc      240
ttgtcgttat tcgcataccg ggtgccgtct tacgggtatc caaaagcctt acagcgtacc      300
tttcaaagcc tcggcatagc gagcgggtcat agtggcaata ccatcattct ttgcaaaaaa      360
ttaagtgcc aatcgttcggc ttgcaacaaa gccggtaact gccttcacac cgaggatta      420
cttgaccgcg ttttacggag cgccatccga tacataggga gtccaagtca cggcttcgaa      480
tcgttcgaa cagggcgagc tacctccatg ccggatatga tgccatcagc cttcattaca      540
ttgtggctgc agtccttcc gattggggga taatggcatt ggaagaaagt ctccatcggc      600
aatgtcctct gcaattgcc gatcgatcaa tttttccaaa gcatttcttc atgagtcata      660
acttaaaagt gatgagggtt ttacggtgtt tatttggtat ttcccgctcc gccggcaagg      720
gtgtaagagg agtgctgcga taggcttngc tcgtatcggg atagtcttcc cgatnatgcc      780
ctccctactt tctcggcgag ctatcgcccc ccgaacgatg agctgaccca ctgcagcagc
840

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(2) INFORMATION FOR SEQ ID NO:1158

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1215 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1215
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1158

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ggagtagatc agatccttcg cgccatcgta gagcaagtac cggccccctgc ggagaccccg      60
atgccccgct gcaatgcctc attttcgatt cggctcttcat ccgttcctgt gtatcatcgc      120
ctatttttaag gtggtgaatg gcagtatcgc aaaggagacc atgtcaagtt tattgccacc      180
gagaaagaat acgatgcgat gaagtaggag tactcaggct cgatatggag ccgcgctcgg      240
aggtcagacc ggcgatgtag gctacatcat cagcgggtatc aaancaagcc gcgagtcaag      300
gtcggcgata cgatcaccca cgtagccaag ccggccaaag aggtatagct ggattcgaag      360
aggtaaaacc catggtcttc gccggtgtat atcgatcgaa gcagaagact tcgagaactt      420
gcgtgcttcc ttggagaaac tcaactcaac gatgcttcgc tgacgtttca gcccgaaagt      480
tcggtggctc cggattcgga tttcgttgcg gatttctcgg tttgctccac atggagatct      540
gcaggagcga ttggatcggg agttcaatat gaatgtgatc acgacgggtc caacgtttct      600
tataagggtg acgacaagaa aggtggctgc aaagagggtc caatccatcg ggactgctcg      660
aaccacgct tatagatcat atagaaaacc cttcatcaga gcttctgtca tcaccaatac      720

```

ggcctatatac	ggcccat	gacactttgt	ttgggcaaaa	gaggggtgtt	ggtgaagcaa	780
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cgactttctac	gacaaactaa	agagtatctc	caaaggatat	gctcattcga	ctatcacctg	900
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atgcccctgtc	tacactcaca	acgtgggcaa	cagtgtcaca	ttcggccgac	gcatgtgcga	1020
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ccaagatcat	cgctcgcgaa	acgatcaagc	ctgtccgtaa	ggatgtgcgg	ccaagtgcga	1140
tggtggcgat	atctcccgtg	agcgtaaagc	gctcgaaagc	agaaagaagc	aaagaaacgc	1200
atgaagcaga	taggc					1215

(2) INFORMATION FOR SEQ ID NO:1159

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1159

accctgccta	aatccccgaa	aaacggcgcg	agaatttttt	cgctttggcc	gagaattttt	60
tgcttcccga	acaaaaagca	aaaaaatccc	gcgccacgct	tcaggagcaa	caaatgcaaa	120
aattttggca	cgtaaacagg	cccaacgaga	tgatgcccg	gcttttttaa	tagcagtttg	180
tatagggcat	tgtattgcca	taagcatagc	tcctgagtea	ttcccataaa	gacgggcagt	240
taaaaccgat	cacctcccc	tatccactca	ttatttgtac	gtaaatgtct	ttttcagact	300
ttaaatactt	atattttatc	cgaaaaatta	cccaagagag	attggtcgat	tgctcgatccg	360
tcttaagtca	tacaatccaa	taatcattat	tgaatgaaaa	aaacaacccat	tattttctttg	420
attgtcttcg	gtgctttctt	tcagccgtgg	gccaaaccaa	ggacaattct	tcttacaac	480
ctttttcgaa	gaagatatgg	ccggaggagt	ttactctctc	ccgactcaaa	atcgtgcgcg	540
aaggacaatg	ccgagtggct	tcttacagcg	accgtctcca	caaaccagct	gcagatactc	600
actttatctt	cgatgagaac	aaccgctata	tcgctcggac	ataaaagcca	atggggtaag	660
aaaatccacg	gactccattt	actacgtgcc	aacgggcgaa	tatcgcatgt	ggatctttat	720
atctcgttca	gtggcgagag	cctgcactcg	acacccgatt	caagtaacac	tatgatgacg	780
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gatgcagata	tatggtgaag	gccgagtact	tcgtcgtcca	gcaaggaaaag	gcatggcagt	1080
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tcattgacat	tccgtcaatg	ccggacagac	ctggcctaata	atgtacggat	tcaacgcaaa	1260
gcgactgaaa	gagattatct	ctcctacgaa	ggagatgtgg	ctactcctat	attcgactat	1320
atcatacgtg	caaggctctt	acctcaatgg	caacaccttc	gacagaagct	cagtagcagt	1380
ctatctcaat	ccgtcaacgg	accggttagt	gattctggcc	acggcatcac	acatctgagc	1440
atgtacgact	tgcaagggtaa	gcttatccgt	attgtgcctt	gagcggcgat	aagggtgaaa	1500
tggtgtcgcg	atctttgaca	aaggacata	cctgcttaaa	gtgaatacgg	atcaggggagc	1560
ctttgtgaaa	aagtcgtgat	tcgatgatgt	agttcggatc	gaatttcgaa	gaaaggactg	1620
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tcgctccccg	gcatggcaag	gagtttttgc	cgatatggga	gggagagcag	ttcatgtagc	1740
gtttgaagg	gcgagagaag	taagcggatc	cgaaaagcct	gcctcaatgc	taatgtcgga	1800
gatgtttttg	ctccatcggc	aaggagcttg	caggccaatt	ttatcttgat	ctgctgtatg	1860
taccgatgg	ggagcaacct	acgacactcg	tgagctttct	gttgagttgg	gtggactcat	1920
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gacaatggga	atgtgacaga	gcagaggcga	ttgtctatcc	ggattgtcat	ttctatccca	2280
tccattatcg	gcatcataat	atcgtaatga	taatgtcggg	aatatgctcg	gtagcgaggg	2340
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ctattcctat	gccattgtct	gcaacgcgta	tgacagattt	tt		2802

(2) INFORMATION FOR SEQ ID NO:1160

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1160

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	tttagcgact	60
ttgggactta	tggccattgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggc	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaaccta	180
tgccaagatt	gagaagcttt	tgccgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggcttttgag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattcccggc	cgagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:1161

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1161

ancctctctt	atattcactt	ggcccaactta	gtcctgagat	aatattaact	cagttcggcg	60
taagaaaacg	ccaatgtatt	cgttccctga	ttagcggtta	cacactaaga	tcttgggagt	120
tataggttgt	tccgttcagg	caattgttag	ggggcaatcc	tgcttttgct	tggtatcgaac	180
caacattgaa	attcggttgc	ttttgaccga	atgttgacgt	ccgtacaggg	agatgggcta	240
taccaagggc	aagatggcgg	tactccatag	aggataacgg	gctatcccgt	acagtcttcg	300
agctacgctg	tagagcccgg	cgcggtgagc	cctacagcgt	ag		342

(2) INFORMATION FOR SEQ ID NO:1162

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 460 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1162

ggtacccgcg	aacggtagcc	gtgtacacct	gatccattac	ggctgagaaa	cttccagcag	60
gagactgttc	ttgagcgtat	attccacatt	tccggacaga	catcgaatat	agtagtcgaa	120
ggagtatcca	tttccttctc	gaacttgaat	cgatctttcc	cgaacgggca	gccgggtacct	180
gagccttatt	catctttcgc	cacgcttgag	gttgggcaat	gaagcaagat	aagtttcgat	240
caatgcttca	tcttggttcc	atccagatta	cggataaaga	agaacataaa	gtcgcggcat	300
cagcgaatcg	ctcattgtag	aaagccatta	cctgatcgta	attactttct	ccacgtcagc	360
agctttcatg	ggtttcatca	tccgattatc	gcgtacatgg	tatgacggat	agagtccata	420
agcgcagcca	tcgggttggc	tctgattttt	tcaagttatt			460

(2) INFORMATION FOR SEQ ID NO:1163

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1163

atgcttcgcc	atccccttac	gtggaccata	cttgccacct	ttttggctga	ttgtcatatc	60
------------	------------	------------	------------	------------	------------	----

tcttttataa	gagatacaag	gagaaccaag	ctcgccgtct	gtggtgacac	ctgaggcccc	120
ggctattccg	gcttatgacc	gagctatgca	gccttggaat	cattacgtgc	aaaaaaaaactg	180
gtggaagccg	gtttgttaag	gaataacttta	cggaattgac	cgatttgctt	cggagctata	240
ttgccaaact	cgcgaaatag	atgccaggga	gatgaccagc	agcgagatat	tacagctctt	300
cagcggatcg	aacttcctga	aaaagggaagt	cgctgtctgc	atgaatattg	caaacggccg	360
acctggccaa	gtttgccaaag	tataaaccca	taatggagag	gatgtggaag	ctattcgaga	420
tgctcgcgcc	tttctcgatg	agtgcataat	atccgggagt	catgacattt	gcatatcctg	480
aattgctttg	ctgctgatcc	tgctgccttt	gatagcgact	tggtatatcc	tgcaagcact	540
aagacttcgg	caacgatgac	catatcttca	ttgaagccct	ttgaaggagt	cgccgaggtt	600
tgagggtcta	tctgcgccat	tcgttgccga	tattgaggct	ctttcggtcg	gttttctcat	660
tattgctttg	gctcgctccg	agaatacaat	agctggcaga	aagattcgat	cgagggcata	720
gatattatgt	tggtctggat	gtgtcaggca	gtatgcaggc	catggacttc	aagccgaatc	780
gcttgaggca	gccaaagatg	tagcgatttc	ctttatcaac	aatcgctccg	acgcaatatc	840
gggatggtta	cattcgccgg	agagagcttt	actcaatgtc	catgactacc	gaccataccg	900
tattgcttaa	tatggtacag	gacttgcaga	tggtgttctg	gatgatggta	cagctatcgg	960
aatgggattg	gctacggccg	caatcgactg	aaggacagca	aagccaagag	ccgctgtggt	1020
attctgctgc	ggacggatca	aacaacatgg	gcgacatcac	accccgaatg	gcagccgaat	1080
tgccagaacg	ttcggttatc	gtgtgtacac	agtcggtgta	ggcacacagg	agaagctcct	1140
ttccccattc	agacggaatt	cggagtccgg	attcagatgt	gcctgtcgat	atagacgaac	1200
ccacattgga	cggaattgcc	gagggtccgg	tggaataaac	ttcagggctg	tcgataatga	1260
aacgctgaat	gaaactacaa	ggaaatcgac	aaattggaga	agacgagact	tatgaccaag	1320
agctcaaggc	ttatgaggaa	aaatactttg	tctatgccct	tattgctttt	ctttgttgct	1380
gacagagttt	ttgtctcgca	atacactttc	tcgttccaac	cgtaaaaaga	ttcccatggt	1440
cagattttat	tcacccgaat	acttatactt	ctgctgtctg	tcccattgct	tgtgggggta	1500
ggcgtctatg	cttatcgcaa	agacggggcg	aagaaagacc	ggtttgcccg	aacttccgct	1560
gctaaggcct	caaaccggaa	gcaagtacca	aacgtcggat	ctggcgcaac	ggatttctct	1620
tcttgccatc	gttttcttga	tcgggatgct	tgcccgtccg	caaatagtat	tcgtgtggat	1680
gtgcctaaag	aggagaaagg	tatcgaggct	atgattgttt	ggatatttcc	aactccatgc	1740
tctgtgaaga	tgtcaagccc	aatctttgag	ttttgccaag	caagtgttgg	gaaagctctt	1800
tgacggcttg	cagacgacaa	ggttggaattg	gttgatttcg	caggtaatgc	ttatacgcaa	1860
atccgattac	tacggatttg	tctgcagcca	aacagtttct	tgcagatata	atcccaatat	1920
ggttacagcc	caaggaacgg	ctatcggaag	ggctatcgaa	ttgcctccaa	atctttttcc	1980
gataataaag	aaactcggtaa	gactatcatg	tcctgacgga	tgagagaaaat	catgaaggaa	2040
atgccatcga	agcggcacgc	aagcccataga	agcaggcata	cgggtcaatg	ttattggtct	2100
cggaaacacct	tgggggcacc	tatacctatt	gaagaaggat	acctcaaaga	tgaaacggca	2160
atcctgtcgt	taccaaattc	gacgaaaaga	tgtgccgtga	cattgttcag	caggagaggg	2220
tactttcttt	tcgggacaga	gtgcttctgc	gctgttcggg	ctatagagag	ccagctggac	2280
aaactcccca	aagccgtact	ttctcttcgt	cttcttccgg	ctatcgcgaa	gtgtacggat	2340
ggttcggact	tgggctttga	tattgtttatt	gttggaaatc	ctgattcagg	agcggaagag	2400
tggttcttca	gtaggatcaa	attgtttgac	agatgagaaa	ttcatggcga	atgccacctt	2460
cataaccttc	ttcatgcttc	ttgtttcaac	gagccgggtc	cgag		2504

(2) INFORMATION FOR SEQ ID NO:1164

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1070 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1070

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1164

ccgattatgt	gaatgncaat	gtgtttgcc	ttgattttga	cgagaaggcg	tacgtgtggc	60
tcgcacgctc	aatctcattg	ctggtgatgg	acagaccatg	tgctacacct	caatacgttc	120

gactatgaac	gatgggaaca	aaacttaata	gtgaggattg	gcaggacact	tatttcgagg	180
ggttgaagaa	actcaaaagc	ttagaacacg	caaggacagt	tatcgtgact	tcaccttcga	240
tatttgatgg	ctaaccaccc	ctttgcggga	gaggtcaagg	agagtcgtat	acttccaagt	300
acgatatgag	ccgtagtatg	tctctcgaaa	aggtgaaaat	agccctaagg	gagcaaccat	360
cgtggagggc	gagccgacct	tttctgaagc	tccgctaata	caggagaaac	catctatcag	420
atgagtgatg	gtacatatcg	aagaccaagc	tcaagcaagc	tggaatatg	agccgagaca	480
tcctctttgt	gagcgtaatc	ttgattttct	caagccgggc	ggtcgtatgg	ctatcgata	540
cctcaagggc	gttttaacaa	cagcagcgac	aaagctttgc	gcgaataact	gccgatcgct	600
gtcgcatcct	tgcagtggta	ggcttgcctg	gcaatgtttt	aagcctcata	caggtactaa	660
gacgagcgta	ctctttgtgc	aaaagtggac	gaggagctat	gcccacgagt	agaggattac	720
aacatctttct	ttgctccatg	caagagccaa	gcaaggacaa	tagtggcgac	aagattttatc	780
gcagaccact	aacgaggagg	gcgagaatgt	tcctttgctt	gacacccacg	ggctctttatc	840
gttaagcacg	atcttttcaa	ccacgatgga	ctgaccgaag	atgcatagct	gaagcctttg	900
cagagttcgc	taagaaagag	agactctctt	tttcgcggac	gcccctttga	cgaagttaaag	960
tacaacgctt	tgttagaggg	ctggaagcta	cggaggtaag	gttgtctaag	ctagaatatt	1020
tcagaatagt	gcagaactat	atgaccgtac	atacctgagt	tatagacgta		1070

(2) INFORMATION FOR SEQ ID NO:1165

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1303 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1165

aagaggccgg	aagccgaagt	caggatgttg	gtattgaacc	gcaatacgaa	aaccccgaca	60
taatggcttt	acatagcgga	cgatgcggca	aacagccgta	aataccgttt	tttagctgaa	120
cggcttcata	ttacatgtg	caatgggtgg	atagaagccg	gctctttcat	gtcagtagcg	180
ctcttatcgg	ctatgagtca	gctgtcacc	gtgggtacgc	tgggcagatg	tcattccatct	240
gcactgatca	atcagggatt	cctttcactg	agagggctgg	agcgtctgac	ccgagcggta	300
aatccgtagt	atggacgatg	cacgatatgt	ggcctgtaac	agcatttgcc	accatgcccg	360
agagtgcctg	cgataccgaa	ccgaatgcgg	tgttggtccg	aaatttcctc	ccaaaaggag	420
aaggatttgg	ctcgtcttgt	aggaatagaa	aatcccgagt	aatatcccta	ctccggccta	480
cgcttatcgg	tgtagccatt	ggttggcgga	tttggcacgg	caaagcgcac	tgacggatga	540
ctcggaatcg	aatcgatacc	gaatcccatc	gacacgaatc	tctttgcccg	ggttcacgtt	600
cggacgctcg	ccgaataatg	gatttgccga	cagacagata	ttgcttctct	tcggagctgt	660
acaggcggat	gatccctcgca	agggcaatac	gaactgtcgc	aagcaatgaa	aagacttcga	720
gagagacagc	cggattaagc	aaacgaatcg	ctcttgtcgt	attcggctct	ctccgcgatg	780
aggtagaagt	ctttttccca	attataagct	tatttcgatc	ggttatatcc	gtgaccaagc	840
cgaatggccg	aactgtaccg	tgctgcccgt	ctctttgtaa	ttcctcttta	gaggagaacc	900
tccctaatac	tattatggag	gctctctctg	tggtacgccc	tgtgtggcct	tccgtgtcgg	960
gggtataccg	gagatgatcg	atcgggtagt	accggaatatt	tagccgcttt	tcgtgatccg	1020
tccgatttgc	agaagggata	accaagacca	ttgctctaca	agaaacctcc	cccgaagcgt	1080
tgcttcagct	tgtcgtctct	ttgttctcag	gcactactcg	cgtgaagagt	atcctctcgt	1140
atgctgcagc	tctaccgcga	actgctctga	cttgtagaag	aaggaatagg	aaaacatcca	1200
aaacgcaaga	gtcttttcgg	caactttcag	cagataaata	tgcagccatc	tttttggcac	1260
caaaacaata	ccttgatatca	taatcattat	taagaacgag	ctc		1303

(2) INFORMATION FOR SEQ ID NO:1166

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2426 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1166

cgcgaggccg	agatattggc	tatcaccaaa	aaagcatgcy	aataacgatg	cacgtacctc	60
ttttcaagtt	ggttccgaac	cgctctctct	ggatctgctc	gcgaatatct	ggatagtcgc	120
ttcaagctgg	aactctcagc	ccgatgcgta	agacgtatcg	agcactgccg	ccactatctg	180
gacgagaaag	tgaagcgctg	gacaaaccca	tatacggcgt	gaccaccggc	ttcggctctc	240
tctgcacagg	acaattacac	cggatcagct	taccgncctta	caggagaacc	tcgtaagagt	300
catgcctgta	gctgcggcac	gcccgttcat	gaggacatcg	tgccctgatg	cttctgctca	360
aagctcatgc	cctccagttg	ggacacagtg	gctacagcta	tgcaccgtgc	agcgtatcct	420
ggacatgctc	aataacgacg	tctccccatc	gtttacgatc	gcggttcgcg	cggcgcatcg	480
ggcgacctcg	cctcttgccc	aatctcttcc	tgcgccttat	aggtgaggga	gaagtcatga	540
caagggagag	aagcgcaatg	cctgcgatgt	gatgcaggag	ttcggctgaa	gaagatcatc	600
ctcaagagca	aagaaggctt	ggctctgctc	aatggtagca	gttcatgagc	agtcatggcg	660
tctacgccct	cctcaaggca	caccgtttgt	agaggtagca	gactgtatcg	gtgcactctc	720
gctcgaagct	ttcgaggctt	ggatgcccc	tttaccgaca	acctccacat	catacgtcct	780
cacccggaca	gttggccgta	gctcgtcacc	tgaagggaagt	tcttaaagggt	agcagcagat	840
agcccgcccg	aagaagcagg	tacaggatcc	gtacagcttc	cgtgtatgcc	gcaggttcac	900
ggagccagcc	gcgatgccat	tgcctacgtt	aagaggtagt	cattcgagag	atcaactccg	960
tgaccgacaa	tcccacggtc	tccccgatga	agatcttgct	gtatcgggtg	gtaacttcca	1020
cggccaaccc	ttgccatcgt	atatgatttt	ctggctatag	ccttggtctga	actgggcata	1080
tcagcgaaacg	tcgcacggct	cagctcatac	tcggctctgcg	caatctgctg	agttcctcgt	1140
agccaatccc	ggtctgaaca	gcggattcat	gatacccagt	atgcagccgc	agctatgggt	1200
agcaagaaca	agatgtactg	tttctcgcag	ccagcgatag	tatcgtcagc	agcaacgggc	1260
aggaagacca	cgttctatgg	gagctaaccg	agcaacgaag	ctgcttccga	tcatagaaaa	1320
cctgagatga	tcttcgccat	cgaactcctc	gatgcggccc	aagccttcga	atccgccgtc	1380
cgaccaagac	gtctccgttc	ttggagaaga	tgctcggcga	gtgcgcaagg	tagctcccaa	1440
ggtggaggac	gatgtagtca	tgtacaaaaca	atacaggcag	ccacggagtt	cgttcgcgaa	1500
tatgctttct	aacgaacccg	cttctcccg	tgattcctta	cgctgaggag	agggagatac	1560
aggcttttoga	atgcaagaaa	gagagagtgt	gccacgaagt	attttcgttt	ggcacacctc	1620
ttctcgtata	ggctctctcc	gacgcaataa	gggtaatgcc	catgccgttt	acaagacatg	1680
agatcagact	aaacaatcga	aaacaaacaa	tgacaaagaa	acatacccca	aagctactgt	1740
cctcgacata	tcggcatcag	tagatattcc	gacggcggaa	tcatcagcaa	acaagtactt	1800
aagaacgaag	tagcaacatt	actctcttct	ccttcgacca	agggcaggga	ttgagcgaac	1860
accgaacacct	ttcgatgcct	tcgtacagat	attggaaggg	gaagcggaaa	tagaatcggg	1920
ggccaacctc	ttctcctcaa	agccggccgg	tccgtcatca	gccggccaac	gtcagccatg	1980
cactccatgc	tacgaaacgc	ttcaagatgt	cctcaccatg	atccgcggct	gaaaacgggc	2040
agacatatatac	tgcgccatct	gtggacgtaa	agcctccaac	aaataaacia	aggagaggag	2100
atctgtaaatg	ccgacagtct	cctctccttt	ctttttcttc	ctaacctctt	gtctacttgc	2160
gactgcctgc	ctcttgcgca	tcatgagttt	gtccacgatc	agcgaatagc	accgtcgcct	2220
gtgacattac	aagccgtacc	gaagttgtcc	atggtatata	caatgctatc	atgagtgcct	2280
gtaaggactc	atcgaaacgg	agctactctg	caaaacacct	aaagccgcca	tgatggctcc	2340
acccggcaact	ccggagntgc	caccatcgta	ataccgagca	taaagataaa	tccggtaaac	2400
aacctgcac	ataaggcatc	ccctgc				2426

(2) INFORMATION FOR SEQ ID NO:1167

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 308 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...308
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1167

cgatctcaaa	ggaagatcgt	accacagccc	tttctgcgga	ttcggtagcg	gacgccgctt	60
cttttatttg	gctgcggata	tagggcctgt	tgcttctttt	cccgatccga	tacgctgact	120
gcccgtgtgg	aagaggtggc	tgctgatgcc	gccctttgcc	gttgaaagag	ctgtcgcccg	180
cctcccgtcg	tctgtaaggg	ggtatgaagc	cctctttgta	cccggtagatg	gcggatcgcg	240
gaacttcgta	tcccggccat	tttgaaaacg	gctaattgaa	cactcatagc	gatgccgaca	300
gacgaaaa						308

(2) INFORMATION FOR SEQ ID NO:1168

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3088 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3088
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1168

tacccccctga	ttgatcagct	ccgttatatc	gcgagatatt	ttctccacag	ttcgatgtcc	60
tgtgaggtca	ccgtaactgt	ctggctgagc	agatacccg	aaaggtcctg	acgttttgtt	120
cctgccgagg	atcgtaatat	tagttgtttc	tttagagatg	gctacgcttg	agaagatata	180
agacgaatcg	ggcagcgctt	gtttttcaaa	tagtctgcta	ccaatatctg	tttttccttc	240
aaagcttgta	ggccgattcg	agatccatca	tctggagctg	gtacgaagca	gtccaacgat	300
cagatcggat	ttgaaattac	gctcggccat	accggtcaca	gtcccgaagg	ctgagagcgg	360
cgtagctgag	cgacactgcg	gccaagagca	taaggcccaa	tacgaaagcc	aaaccggcga	420
cgatcgcaat	ccaaagtttt	tttttttcat	cacaaagcac	tgtattgatt	ctatatattc	480
acttcttctc	ccatagaata	caggataagc	aaagtaattg	gtttcccacc	gacgagtcgg	540
atattgtatt	cgcgctccat	accgacggca	aagccgaatc	gctcggagct	ttcagctcaa	600
gcgatccacc	gtactgaggg	ccgaatccat	gcacgggaca	gccatattga	gtcctgagcg	660
cgtactgctg	tagagaggat	agctgcaaat	ccattgacaa	agacattgtc	catcacttcg	720
tatcgagcac	ttccttaagc	gagaacgttc	tattatcgaa	agcattccac	tgtacctgtc	780
gatatcgata	ccggtggtaa	aactcaatct	ctcgggtggc	tgccaacgca	gttgccattg	840
acagccgtca	taggtataaa	gccgaaattc	tgctgccaac	cgcttgagca	tgtgccgtaa	900
gattttgact	cagcaagaag	tcggcaccag	cttccatccg	aagtccttgc	gcacaccggt	960
caataaatca	tggccaagac	gatattgccc	gatgtataaa	aatgcaccc	atcgggtcgg	1020
cgccatgaag	gacaccggca	gcgtggcgag	tttgcaagag	gggagaaacg	aaatcccgcg	1080
ctctgccgcg	aagttgagtt	cctcattcaa	ttgcaaagat	gagcgatagg	cttcaatcca	1140

ttgagcaaag	catcggaag	atgtttgtct	ctaaactttt	cagtgtacgg	gtattctgaa	1200
aagaagcggg	caggacggg	tgatcatgga	gagaagaggg	gtctgtcca	ccatgctgct	1260
attcggcact	ggctaaccgt	agagagacta	tcccttttct	cttgcgccat	cgcagagaaa	1320
agactaccac	gaatatcaac	ccgaacagga	cggttctcgg	acgacggata	agcaccggat	1380
tatcatgagt	cttgcataat	ttgatatacc	gcaaagataa	atattatagg	tacaacagac	1440
ataccgtaca	ggccctaag	gttatcccca	tctacaagac	gaagcagaca	ggaggaggaa	1500
aagaaaggct	aagccgacaa	agagaaggat	acacatccta	tactcagttg	attttcacac	1560
cgaaatttgc	atttacagcc	caaaaattct	gtttgattgg	tagccatata	ctggagggtg	1620
accttttccg	aaggcaacta	gaatcagctc	tgtggcaaaa	gagttcatga	aaatcccgtg	1680
caacagtttc	tctttgtaac	tctctgtccc	ctctgttcta	ataccggtct	atgtctatat	1740
tccctgaaat	atccgggcct	gtgatcggtc	ataagagtct	attcagacaa	agcaattcct	1800
tgagtttttc	cttttccctc	gcttcagttc	atgggcaaa	ctacttggtg	gcgaagagtg	1860
atcgccacaa	aaaaccgtat	caggggcaaaa	acagaagcgc	gagctgctga	tccattcgaa	1920
gcttttatca	agccaagccc	ggcgttgccc	ttgctattgg	aaatacgtac	tacgagatga	1980
agcggagacg	atgacaacgg	aaaaatcaac	cgccgaaaaa	gtgtagcagg	catcatctca	2040
cagccgatcg	gtttacgtcc	ggaatttttg	tgtttgcagt	ttggaaaaac	gtggtgcgta	2100
aacttttcgc	tttggcgcg	gaagtataaaa	aatctcgaa	caaaacgaaa	aaattcggca	2160
ccaccttctt	cagaaaagac	gcgcgcgaat	cagaggattt	tggccgtat	cgggtgggata	2220
gtggttgatg	gatattgact	cgatagtaga	gctgcctcca	acggcagccc	taagaaaaac	2280
tcgataaaaa	aagcactatt	ctcttgccgg	acatcgaa	gatcgtcaag	gacgaaccga	2340
atgaaaacca	atagatctca	tgcctctctt	cgacgaaata	accgatcggt	ccatccgcca	2400
gagagtcata	tccgagtagg	cactcgatcc	tgaattgaca	acaacgggag	ggaccagcgg	2460
ccggagacat	gatcgaagag	atagacagct	ccatcgcgag	cccatccggg	ccgagaggca	2520
gggagtgtag	cacttgatcc	cttccgttct	tttcaactga	agcatagctc	cattacagcc	2580
ggggtcatgg	atgccttgaa	ctgcttggtc	ctcttccaag	taaggccatc	gtcggaggag	2640
agagcgagaa	acgctgtcgg	ctctcctgcc	gtccctgatt	gcgtatgctc	atcagaccct	2700
gccatcgggc	atcaatgaaa	gctttgcctc	atcgccacgg	cggttgacac	gtcggaaagc	2760
tgccatgtat	cagccctcat	cgtcgctata	gagacatagt	tggtcaggac	gtactcctgc	2820
cctgattcgc	ggatggcagc	caaaaacgtg	tacgacggga	tggcagcaca	agcccttgct	2880
ccgaagcaca	aaggaggcca	accagcgact	gcgtcccggg	tgggcacaa	ccttgccgaa	2940
atgaaatggg	ttatatcccg	aggaggcgac	caagtcagtc	cttcgtccca	ctttccgata	3000
tataagtgcg	ctgaggacga	tgggggttag	actgccacgg	cctactccac	cgacaaagat	3060
catcaggagc	tttccgtgct	gggtttga				3088

(2) INFORMATION FOR SEQ ID NO:1169

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 819 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...819

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1169

ggagagcgag	cgaaagaact	ttctttacga	aagagacacg	gcccgttcga	actggcgaaa	60
cttcagggcg	cggtcgagtt	tcatgagaag	aagatcgcg	agccgggaaa	gaccggacgg	120
ttttcgagga	gcgggtaaag	aaaaacgaga	cgggacatac	caaaacccga	tacggatcga	180
tggagtggaa	gacggcgagg	tatcaaaaca	atcgctcgca	ggctgaaaga	gtacgaagag	240
aaagccggac	aggcggagag	cacatgccga	tgggcgaatt	atacggcttt	caatatccgt	300
caagagcgaa	gcctccatga	aagagagttt	cgacttcgtg	gataccgggt	ctttgtgaaa	360
ggttggtggc	gcattctatta	tacttacaac	aaggacattt	ggctgaagac	cccaaactgg	420
cctgcataga	ctttctgaat	gcttgagaga	gattcccaga	gtcgtcgaga	gtcatcgga	480
agaactggct	cgacacaagc	caagataccg	acgttcgaaa	cgatgggttc	tgccgtatga	540
agaaagagga	ggaattgcag	gagctgaaga	gacaggccgc	ggagctggtc	gcaagatcgc	600

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cctttcgctc aaaaaagagg acaacagcga agtgaaacgg aagaaacggt cgctcccgat 660
gcgacaatcg catcgatgcg cccttaggga ggagctaaaa agggaaacggt cttccgagcg 720
gaatcatacc gattgaaaga aatacgggag gatgaaaaaa tcaaaccctg cataaagcct 780
ggaagtgtg agagatacag agatatacct gatactttc 819

```

(2) INFORMATION FOR SEQ ID NO:1170

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 588 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1170

```

atgcgattgg tcttttcgca tagctttctca aaaaccttgg ctgaccgtac tgcgatccaa 60
tatggaagtg caatcctctc cataccagcg atccggacgt aaaaggtggg gcatcagtg 120
aagtgcattc tcgggcaaaa gaccgaattg ttttctgcca atcctgtcgt tatatggctg 180
tgcgtatgcg catcgactca ggattgagcc gaagcaatat cggagcgatg tcgttcttcg 240
atccgccaat cgttcgatgt tcagcaattc gggcacactc tctactacga aagccctatc 300
cgcgccctca aagaaagcaa aatctcttca tcgcttttgc ctatccggca aaaaaaatat 360
cggaagcggg aaagcctgcc tcgatagccg ctcgatctcc cctccactca cacagtccgc 420
cccgaagccg gcagctgcaa cgtctgcaaa atacgaggat gattgttcgc cttgagcgca 480
tagtgaatgg aacatcgctc ctccctgcac tccgggagcg cgcgaaagc gtcctctcca 540
gagtgtcaga tcataaaaaat agaaaggtgt tttcattgaa aaaataag 588

```

(2) INFORMATION FOR SEQ ID NO:1171

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1060 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1060

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1171

```

aggaaagcat acaggctcga ccacactcag aaaaagataa gtaatggaca caaactcact 60
tctcgattca agcccacggg cgaccagccg gaagccatcg ccaactcgta cagggcatca 120
acgaagggat gccggctcag acgctgccgg cgtaacgggt tggggcaaaa cttttacgg 180
ggctaactg gtggcgcggt caatcgctcc acccttgtcc tgagtcacaa caagacctg 240

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gcagccagct	atacggagag	ttcaaagcct	tcttccccga	gaatgcggtg	gagttttcgt	300
cagctactac	gactactatc	agcccagaggc	ctacctcccc	gtccagacac	ctatatcgaa	360
aaggacatgg	ccatcaacgc	ggagatcgaa	aactgcgatt	gagggccacg	gcttcgctcc	420
tgtagggcg	gaaagatgtg	ctgtggtcag	ctccgtatcc	tgtctctacg	gtatggccaa	480
tcctgaagct	tttccgaaaa	ggtgatcagc	ctgcacacgg	gacaaagggc	agacagggac	540
atthttatccg	cctgctggta	gagagctact	acacgaacaa	taaagtaggt	tcgagagcgg	600
caacttccgt	gtcaaaggcg	acagcgtgga	catattcccc	ccgtagaagg	ttatgacggc	660
gtggcataca	gggtggagtt	ttgggaggag	aggtcgagcg	gctgagtacc	ttcgatccgc	720
gaacgggacg	ggaatcggcc	tgctgtcggg	gctgaagata	tatccggcca	atctcttcgt	780
gacgctaagg	agcaggtgga	tcgggcagta	gggaaaatcg	atgtggatct	ggggcacagg	840
tcgattttct	gaaagaaatc	ggcaaaccat	atgaagccaa	accttgatg	agcgggtcac	900
gtatgacttg	gaaatgatcc	gtgagttggg	tattgttccg	gtattagaga	actattcgcg	960
ctacttcgac	ggcccgtgac	cgggcgaacg	tcctttctgt	ctgttgatt	atttcccga	1020
gattttcctt	tggtcataga	cgaagccat	gtaacgatac			1060

(2) INFORMATION FOR SEQ ID NO:1172

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 731 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...731

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1172

ccccccggtat	ttgcctcgaa	cgggatgagg	agacagcgta	gactactggc	aagaagtatg	60
caaaaaaaga	aaataagagc	agagtatgga	acagaaaaga	ttttcatcac	ctataatcag	120
gcctaccacg	atattatcat	tcgattgtca	gccgatacaa	cctcagagga	tataacctatt	180
gggagactgt	ccgcggtgcy	gtagcgatac	gggtgagcct	cacttgggca	ctcatgcatg	240
gcctagctca	atggcgccct	catggtcgtt	tgtccttccg	agaaaatgaa	aacctaatgg	300
acgctctgcy	tatccttgac	gccgtactc	cggatcaggg	actcgcgcct	ttgtttgga	360
tatcgagcaa	acaatctgat	cggagactct	cggctccatc	ttcttagtat	atgggggctg	420
catccaataa	gttttggtg	cgctcctttt	tattgtctcg	ccgtgtcccc	ccctcatctc	480
gcattcggct	atttacgctc	tggaattttc	tcgtttactg	tcccacaaaa	cgtgggtggtg	540
aactttttctc	ttttgggtctg	ggaagcaaaa	aattctcgcg	ccacaacgaa	aagttctcgc	600
gccactttttt	tcagagatat	tgctgtccgg	taaaattctt	cagctactca	ccattcgtaa	660
gcatttgcaa	gccattacc	gaccgaggcg	ttggctgtga	agaaagtctg	gcgtatggct	720
gatagagcga	c					731

(2) INFORMATION FOR SEQ ID NO:1173

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1173

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gagcccaatc aattcacctc ggtacccggc gagactattc gcgatttggg ctggaaggac      60
aactcagcaa aaaaggaacg cccacgatgg gaggtctgtc attatcatct ccattctgat      120
ccccactcta ttgttggccc gtcttgaaat gtatatatcc tgctcatgat cgtcaccact      180
gtcttgctcg gctcataggc tttttggatg actacatcaa ggttttccgt aagaagaaag      240
agggctgcac ggacgttaca aaataatcgg acaggttggg cttggcttca tcatggtata      300
gtactgtata tgaatcctgc ggtcgtgacg aaagaaaata gcgagtgcct cgggatggac      360
aggtcgaacg tgtacacttc acaaacacgg agtaaaatcg actaagacaa cgatccccctt      420
tgtcaagaac aataatttcg atacgccgat atacttccgc tcgaaggcaa aacaaaagtg      480
ctattcggct gattctcttc gtctgcgtag ctgtagtggt agtcaccttt atatccaacg      540
tgccaatctg actgatgggt tggatggttt agcgacgggg tcttctgcat tatcggagtt      600
gtactggcta tttttgccta tgtctcctcc catatcggat ggctcatat ctgaatatca      660
tgtttattcc cggagcagag gagctgccat tttttgcttt tgctttcggt ggtgccacga      720
tcggttttct gtggtcaatg cttatcgggc acaggtcttt atgggagata caggaagtct      780
cact

```

(2) INFORMATION FOR SEQ ID NO:1174

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3570 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3570

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1174

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cttggtagcc gccagagata tttcggcagt acggaatcgc ccggggagaa catattgctc      60
gcttcgcact actgaagatc gtcaggcgaa agatcagccc agtaccttac ggcggcgaat      120
tccccgataa tcggctgact cccgaagtct tctgtctcgg aagcaagacg gtcaaaactg      180
taatacggtg tcttttctcc accaccctgt tcagcagggtg aaacacataa ggagagtga      240
catgggtcct ccacgatgca gcagatagcg aacaaagcgc aatgcatgca agtgactcta      300
tcgctgacag ataggaatga agaggagaga caagacattg acagatcggg cggataataa      360
cttactcctg ctcttggggc aagatcagat tggtactacc cctactatgg cagccaaacc      420
gataccggcc atcgtaaatc cccgaacgaa acgactgctc cgccgatacc gagcgtaaga      480
gtgatggaca tataataata ttacgtgtcc gactcatatc cactttatga ttgaccagat      540
ggcaatgccg gccgaagcta tcgtaccgaa taggagcagc atgatacccc gagaacggca      600
ggagggatgg atttgagcaa ggcaactgacc ttacctaaagc tgagaaaaca attcccgtaa      660
cggctgctat acgaatcacc atcggaccgt cacacgagtt agggccatgg ctccggttac      720
ttccgaataa gtagtacggg aggtcctccc agcagacctg ctaccataca ggccaaacca      780
tcgccaagag ggtacgatgc agccccggat cttttacaaa atcttttctt gtcccgtatt      840
taccacatag acgtcgccga tatgttctat cacgggagca atgccacagg caacataaag      900
aggatgggag gaagagagaa cttggggaaa gaaactgagg caggctcaac cagcgagcct      960
cacgaacagg attcagatcg cctcatagaa aacaacggct atcacatagc ctaccactat      1020
accgcagaaa tggaatcag cttgaaaagc cccttggcca gcatagttac tagcacgggg      1080
tagcaagcga tatagtagcc agtatccagt tggattgtgc catatccctc cggctccggc      1140
aagcgaaaagt ccgatcagga taatgacagg gccgatacta caggcgaggaa caaacgttgg      1200

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atcacacgta	ctccctgcc	cttgacaaa	gactcatcag	ataataaacc	aatgccacac	1260
cgaccatacc	cgaagagcac	cgggcagccc	atacatctcc	gtagccttga	taataggagc	1320
gataaggcaa	aactactacc	aagaaaaata	ggcaccttcc	ctttcgtcac	caatgaaaaa	1380
tcaatgtacc	gatgccggcc	gtaaacaggg	ctgtcgaagg	gctaaaccca	caaggagggg	1440
cactaaaaa	gtagctccga	aagcaacaaa	aggaactgta	cgcctacgat	gctttttcgg	1500
agcggagaga	gttgggttgt	tccatataaa	aaaccgatta	taatttgctg	gattttaagc	1560
cctgcaaaat	atggcatttc	cctttatccc	attgagttgc	atgcttgttt	tgcaatattc	1620
gaacctatcg	tttataagca	gaacacgatg	ttccttgggg	ttatactaaa	agtcacgga	1680
ctttatacta	taaaccctcc	atactttata	cttaaacccc	tatggcttta	tactataaag	1740
tctcctgcgt	ttataactaa	aaccttgggg	ctttatagta	taaagtctca	aggtaatcga	1800
aaatagaccc	gactaagttt	tttcatacat	ttgtttcagt	ttttagccat	tatattatat	1860
ggaagggttag	acaaactcga	caggcgaatc	ctgagcatta	tctccaataa	ttccgtatgc	1920
cgttcaaaga	tggtgcagaa	gaatgcggcg	tatcgcgtgc	gccgttcacc	agcgcgtaca	1980
aagaatgatc	gaaatgggag	ttattacagt	tccgggctatc	gtatcaaccc	gaagtctttg	2040
ggtttcagaa	catgtactac	gtaggcggtc	gtctggagaa	agcctcgatg	tacaaggatg	2100
tactcccat	ctgtacaaca	ttcccagat	cgtggagtgt	cactatacga	caggacctac	2160
tctttgctga	tcaagctctt	cgccatcgac	aatgaccacc	tgatgacatc	ttgaattcga	2220
ccatccaaga	aatccccggt	atcgtctcta	cagaacgctg	atctctctgg	ccgaaggatt	2280
caatcgtggc	atcaagatac	ccgaggagag	caataagcac	atgcctattt	atacatatac	2340
cctcaccgat	cgatacgcta	aatgccgtcc	tatacgctta	cccaattagc	ctctgctgtc	2400
cgaattgtct	cgaaagcgga	ttccccggac	gctattgggt	cagtgcagag	ccagtgggtg	2460
ccgcgtaggc	ataticggac	attgctacct	ggagtgtgctg	acaaggatac	atccggctct	2520
caagtaacag	cccgtatgaa	agccatgaat	gggcttcgga	ctatgccaca	ttatcaggac	2580
gctttcagag	agaaacggcg	aaacattcga	ttccgggtctc	cacgttctgg	tactggtaag	2640
tgtatctacc	atgagcaata	tggactaagc	cttcgcattc	tggacataga	cccctctaca	2700
caatgggggc	tatggctcgc	aaacgcaaag	agatcatcga	agaatgcgcc	ggcaaggctc	2760
atacgacctc	aatcgacgcc	tgtccctacc	ccgcccacc	aacgcattgc	catagtctca	2820
tccggtgcag	ctgcggcgtt	cgagatttca	tcgcacacct	tagccattcg	gccgagcatt	2880
tctgtttcta	tccgtctctt	tccaagcgtt	gatgcaagga	gcacaaaccg	aagcatcggt	2940
ttgggagctt	tggagcgcac	cgcatatcac	cgggattctt	tcgatgtagg	gtcatcattc	3000
gcggaggagg	agcagtgagc	gaactggcag	ctttcgaccg	cttgccatcg	gacaagcatg	3060
tgcacgcttc	cctctcccta	tccttacggc	atcggacacg	acagggacga	gacggtggtg	3120
gatctggtag	cttatcttcg	ctcaagacac	ctacggctgt	ggccgatttt	cttgtaaaact	3180
gccaggcgaa	gagtggaat	tgatcgacga	ccttcgctcc	cgtgctgccg	aaggcttcga	3240
atgatgatga	tgtactgcca	cgaacggctg	attcagctat	cgcccgcaca	ccggccatac	3300
tgaatcatc	tgttcgtgaa	gaacaccatc	ggtaaagtcc	gtagaagatc	gcacccgatt	3360
agccgctaaa	cagcggatcg	cttcggactt	cagcaactcc	aaatagcaag	ccgcagcctg	3420
ccggccttga	gaagagcgaa	ctgaaacaaa	atacgggtca	attggatcag	gtagcagccg	3480
actgccttta	ttggtgacag	ccaatctgaa	gaactacaat	cgacgcctga	aaccaacgaa	3540
caggccatcc	gcctgttgca	ccccaatgct				3570

(2) INFORMATION FOR SEQ ID NO:1175

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1175

agtatgtgta	tcaatttggg	agtattgtcc	tatttcaaat	acttcaattc	ctcggtgaga	60
tgcttttctc	tctcattcag	gaaatcggtc	tcgtgacat	cgcctcggag	ggatcatgac	120
cgattgggag	cattgggaca	ttatactcct	gtggggatct	cgttctatac	ttttcagacg	180

atgagttaca	ttatcgcat	tatcgaggtc	aggtgcagcc	tctaaaacgt	tggatagatt	240
acgtctctat	gtctctttct	ttccccagct	ggtagccggc	cccatcgccc	gcgccgagat	300
ttcattccgc	agatataccg	ccgtccgggtg	ttggaaggga	gggatatgcc	gaagccctga	360
tgttgataat	gggaggtctc	ttcaagaaag	cgtcataatcg	gactatatca	gcctgaactt	420
tgtggatcgc	gtgttcgatg	cccaacgctt	tacacgggat	tggagaacct	tatgggggtg	480
tatggctacg	cctacagatc	tattgcgact	tttccggtta	ttccgacatg	gctatcggtt	540
agctctggtg	ctcggcttcc	gcttcaatat	caatttcgat	tcaccttaca	gtcggccaat	600
atcaccgagt	tctggcgcag	gtggcatatc	tctctttgtc	at		642

(2) INFORMATION FOR SEQ ID NO:1176

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1176

atttaccacc	ttgcccagaca	caccttttgcg	acgatgtcgc	tcagcaaggt	gtaccgatgg	60
aaagcgtagt	aagatgctcg	gtcacacgaa	tattaaacac	gcaatatatg	ctcgtatcac	120
caccaagaag	attgagcatg	acatggacag	cttgcgaaaca	agctcggaaa	gttcaataca	180
gcgatgggcg	tttaatagat	tgtacaacta	taaaatcaga	catcattatg	aaatctacag	240
aaaagaagaa	ctgtcccact	tccgttttgaa	gttggaact	tacctcaacg	agcatttccc	300
gaaatgtcgg	gaaacaatcc	attcattaca	gcacggctcg	atgagcgcgtg	actgcctact	360
gtgatgccgt	ggcacaaggc	ttctctcatc	ccaagccgag	agtatggcaa	gtgaagtcct	420
gtatcaaggg	ctgcatttct	ccgatacgat	acccttgttt	ccgtcttgga	gcgggagttc	480
gagcaggaac	gccgtcacct	cttcccgaac	gactcgctcc	gatactgcta	aaaaacaagc	540
gatacaaagc	gtatttgcca	agtatgacct	tacagacgac	tttgaggcag	tccggaatac	600
gaacatctct	acaccgaact	gacaggcacg	atagtccctt	tatcgaaagc	aatcacctgc	660
ctacaatagg	cggagggaac	gatacctata	atcacccaac	atcggaagcg	tttcagtatc	720
aagagccaag	atatgactcc	gcttcacacg	acaagggaca	agctcttgtc	tttgtgtcgc	780
gcacatcttg	tccacgctct	tgaaactcta	aaatgccttg	atatggatat	a	831

(2) INFORMATION FOR SEQ ID NO:1177

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1177

cttcttgac	gaggcggagc	ataaattcac	gttcattgac	agctcgggta	agctccgctt	60
gatgtcggca	gccaagtcag	gagggacagg	cttaccggag	ttcgcagttc	tcgctttttg	120
tcctgtacgg	tcttctccat	cagatgctgt	agcaatcggc	gaatttcttt	ccgtctgacg	180
gtatataaga	tacagattgc	cgtggatatt	cagctctctg	cgcagtcctat	agaaaggctg	240
catacatcgg	ggtacttggg	actccaccag	tccttaaagg	cctcattcca	tttctctttc	300
cgctttgacc	ttgagtagct	ccatgatcct	gctatcgaag	agagcgatgg	cagatctatg	360
gg						362

(2) INFORMATION FOR SEQ ID NO:1178

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1257 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1178

acccatcctc	tgccggaggta	cgggtatgta	tatcgaagcc	gtgctcaaag	ctaccacctc	60
cccgatgttc	cgcccaaccc	gacgcttcgt	gatcgtctca	aggaaagagt	ttgacagagc	120
tgactcttat	actggctgca	tacggcctct	gcacaataag	acggacgtgg	actcggcaca	180
gcgagctatc	agggcttcga	aatagccgaa	tacatcaaga	acaatccggg	cgaagcacc	240
gagttcctcc	tatcgacagt	ctgattatcg	gtctcgatct	ggatcgcgac	acccacgcaa	300
aaggataacg	gacaggctcc	atgcccgat	gcacgagggt	atgtagagga	agtcaagggg	360
cttctcgaca	gtggcattcc	ggccgaggat	ctatctatta	cgggctggaa	tacaaattcg	420
tcaccttgta	tctgacaggg	cgacggacta	cgaatccatg	tttaccggac	tcgaaacggc	480
cattcaccaa	tcgcaaacg	ccagatgaca	tgggtccgtg	gcattggagcg	tcgcggtatc	540
ttattcattg	gatagatgcc	ctgctccctg	cggacgaaca	gtgtgaagcg	tcattgaagct	600
ctacggagcc	aacgggtaaa	actttttcct	gaccgaacct	ccttttttct	gccaacgagc	660
agatgactac	acgtacaatc	ctgccatctg	acagcgaata	agcacattcc	gacaggaatc	720
agtcaggaaa	tcggcttggt	atagctattg	acataaaaaat	tgccggagcta	cataagaggc	780
ttccatttgt	acaggcaaac	aatcaactaa	caataacaaa	ccaagcaaca	atgacatcaa	840
accattggca	gaccgcgtac	ttgtaaagcc	ggctgcagca	gagaaaaaac	agtgagcggg	900
atcattattc	cggattcggc	caaagagaaa	ctctcaaggg	tgaagtaatc	gctgtcggga	960
acggcacgaa	agacgaagag	tggtgctcaa	agcaggagac	accgtactct	acggcaaata	1020
tgccggcacg	aaatagagct	ggagggtgaa	aaatatatca	tcattgcgcca	aaacgatgct	1080
tggcaatcat	ctaattgggca	aaacaaaaaa	atcagaacaa	gttaacatgc	aggttggcct	1140
tcaaaaacag	gaaacccag	tggtaaagga	agagacataa	tccctccaaa	aagaaaaaaa	1200
taaataataa	agactatggc	aaaagaatca	aagaacaagt	taacactgca	ggttggc	1257

(2) INFORMATION FOR SEQ ID NO:1179

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1179

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ggcgaagctg cccaacgact cgaaattcta ttgctgtcat acaaaagacc gacaaaaaga      60
gctaccgcaa cgagaccgag ctgatgtaca aactcgccaa gaactccgaa gcgataagta      120
caaagcggac gtaacgaaac tggctattcc acttgggtag acaagatgga cgaagccaac      180
aaagctttcg accggaattc gacctccaca gccggcgaat cgggcgaatt gccccaaatc      240
ccctcgaacc gtcctcaccg agtggcgcat ccgataccga tggcagcagt agcgcgagcc      300
gggttcgcac agcggcgatc tgtagccgtt agcacggcag ggaggatgta ccaaagccaa      360
accactctct gcctgcatcc aaagagagag gg                               392

```

(2) INFORMATION FOR SEQ ID NO:1180

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 598 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic).

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1180

```

aagctacttt acgatcgatt tgctgaacga tggagacttt catcttcgat tgttggcgag      60
tgtacgtaca cgcataatcct ccggacgttc gatctcgttt cctctacgtg acgacggatc      120
agatcgagga attctttccc atagcgatag ccttgccgac acccagccg ggaatattct      180
gcagctcttc gatcgtagcg gatagaacgt agccatagcc tccaatgagg gatcttgga      240
gataagtagg gaggaactt gagagatgca cccaatttct ttctgaggtc tttctcatgg      300
cgaacaggac cggatccatg gccccaccgg aacctcgccc tccaccttag gagcatcgtc      360
atcctcgtec tcttcgttct catcgacgat ctgaaagaaa caggtttgag ggcaaacttc      420
ttgcctttgg ctgtcacttt cgcagaccat aattttcgat gtcccgaactc aaatagccgg      480
aaagcagtgc tgtctgatga cggctgtcca tgttgtctcg gtttcatcgc ttccgatacg      540
aagacctcta aatcctgatg tccgaatgac tctatatcag gagtcaatcg cccatcaa      598

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(2) INFORMATION FOR SEQ ID NO:1181

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 474 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1181

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaagaa	atccgataaa	aagcattcgt	tatttttggc	agtgagcaga	tattctttgt	180
ggaaaatccc	cctaaatcta	tgccccatat	agcaatttac	agtagcttcc	tgaacttcat	240
ctccgcaacc	tggtgatttc	atccttgtag	gtctcaagat	ggtggaggat	gatgtttcca	300
catagatgcc	gatggtcata	tccctattcc	tcatagacat	gacatctccg	ccaatgtatc	360
ctgtaactct	ttggcaatat	agatgggtctt	gcatttttca	aagtattgcg	acagatgaaa	420
agcgactcat	aatcgccctt	gcggattttc	gcctttctct	tcttgaaact	ctng	474

(2) INFORMATION FOR SEQ ID NO:1182

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2249 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1182

ttttaattcc	ccttggtacc	cggcgcgaga	aataaaaaat	ttacgcgccca	aacgaaaaaa	60
ctgtggttcc	actttttcag	gaaactcaga	ccgcaattca	gatttttttg	gacgtatttc	120
cgaggtgacg	atagatcgaa	ctcgcgcact	acagcatata	cctcctatct	ttgccgagaa	180
aaaggagaat	acccgaccga	aaggcgatag	aaccataggg	atataaatga	ggatattctc	240
catcaaaccg	catcaggcta	atatgacaaa	ggcttacggg	gctggctgcc	ccttcaaatg	300
aaggcagagg	aaacgatcag	gcgaatggat	gaatccggcc	ggtcggacga	tcattttctg	360
ttgccataga	ctttgagatg	gatgagggga	tctcatatcg	gaaccgctga	atcaaaaaaga	420
aatectattc	gacgtacgag	gcaagggaa	aaccccacag	ctaccgatac	gaatgagagc	480
aaggctcccc	gacttttata	ccccaccccc	aatcattgga	gacctatcga	catcgtttca	540
tcggatccgc	acagccctga	tgcggtggcg	tagcttcttg	gccaatctac	cattgctacg	600
cccattgaga	tgaatatctc	gcttgaggag	gtattcatcg	cagtcgcgcc	tcatacaagc	660
tcttgattcc	cggacgactg	gtttgttcag	tccggaaatga	tttgtcaaaa	tagagaatgg	720
gcaaatattc	accaaccgat	gaaagggacc	atagatgctt	ccctgccgga	tgccgccggc	780
cgctactgtc	cgactataaa	gaaacggccg	aacatcgac	catcgtagat	ctgtacgcaa	840
cgacctgaac	cgagtcagtc	accacgtacg	cgtctctcgc	ttcgctatct	ggatgaactc	900
cacacgaaca	agggacgact	gctgcaaatg	attcggagat	cacaggcaca	ctccctgcgg	960
aaaaagaaaa	gcgttttcggc	ccattattca	agagctacta	cccgcgggct	ccatcagcgg	1020
agcaccgaag	aggccactat	cgaagctata	cgggaggcag	aggggcagca	acgaggctct	1080
acacaggtgt	tttcggttat	ttcgacggta	gcagcttcga	ttcggcttaa	tgattcgcta	1140
catcgaacag	cttcccgatg	gccattacct	ttttcgagtg	gcggcgccat	taccatcaac	1200
agccgctgtg	acgacgaata	cgcgaacac	aacaaaaggt	atatctgcca	ttctgatcga	1260
atatgtgcta	tatcaaacca	tccgcacatga	agacggcctg	ccctatctgc	ttgcgctcca	1320

tcagaacgaa	tgagccgcac	gtgcgacgaa	aagggttttc	ccctcccga	aaaccttgcc	1380
tgacgaatct	atgccctccg	gaattgatgt	gcggaatgac	caatgtcgta	ttctatatgg	1440
taaggagggc	atttcggacg	tttccttttc	ccttatacac	cacgccaaat	atcctccctg	1500
cgtatcgtaa	cggctccagc	gatttggaact	atcatttgaa	gcagggttgac	cgttcgtctc	1560
tcgaagcttt	ctcaagcaaa	aaggagaagc	cgatgaaatt	attatcctgc	gcaacggctc	1620
ctgacagaca	catcctacac	caacctcctt	ctacatatcg	gaggagactt	ctcacaccgc	1680
gcgtccctct	cttagaaggc	gtacaagcc	ggtattgctc	caatccggtc	aaatacgacc	1740
ggcagacctg	caaatacgaag	acctaaaaaa	gcagaagaaa	tactgctgat	caatgccatg	1800
ctcccccttg	ggctaccatt	cgtatacacc	catcgagat	tattttttga	ttatcatctt	1860
cgctatcgga	tcgagttatc	cgacagaagg	cttagaagag	gtaggagata	tgagatagc	1920
cccgatggta	tgcccggaag	ttcggttcggc	ttgcggatcg	acaggatatg	tgagatgaca	1980
ccgggcggtt	tgccataggc	tataccgtct	ttcttttcat	caggtcgcca	tacaaccgca	2040
gctctgtcat	caggcggtgg	tattctgcat	cggaatcgag	acgtacagag	aggaacgcac	2100
ctccacgctt	ctctattacg	ataggcatag	ggcaaatagg	ccagctgata	gtcgagtgtc	2160
ctttctggat	ggtacgaaat	cttatacgaa	tgcgtcagca	ccattgatta	agcagccgaa	2220
agcgaaagtc	caaaatccaa	tttgatcc				2249

(2) INFORMATION FOR SEQ ID NO:1183

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1183

ccctgttcgc	cgtaatatata	tgttttaatt	cctgtatggt	gcaattgaat	ctgcaaactc	60
gtacctatcc	actgcaggct	tggcttcggt	ttaattccgt	atgggtgcaat	tgaaatagct	120
ataaccctcg	atgagtacta	cgagggaatg	gcgttttaatt	tcctgtatgg	tgcaattgaa	180
atgaagtagt	tctcgccgct	accgagaacg	cttcttcggt	ttaattcctg	tatgggtgcaa	240
ttgaattttt	cagtcggtag	cgaaaactac	tttttatctc	gttttaattc	ctgttggtgc	300
aattgaaata	acgcatttta	tgtgcgccaa	gataattggg	gcagttttta	ttcctgtatg	360
gtgcaattga	aatttacggc	aaaagggttt	agtacctaat	ggaaaaatcg	ttttaattcc	420
tgtatggtgc	aattgaaatc	attttacaat	ggatgccgaa	accgacagtc	taagttttaa	480
ttcctgtatg	tgcaattgaa	ataagaaaga	agaaagaata	agtagaaata	aagatgatgt	540
ttaattcctg	tatgggtgcaa	ttgaaattaa	tgttacacaa	tggtatacga	tgatggtaaa	600
cttgttttta	ttcctgtatg	gtgcaattga	aattttacaat	atctaacgat	gatactatag	660
tgcaagtttg	ttttaattcc	tgtatgtgca	attgaaatta	aatcaatcag	acagtatcaa	720
atgaagtgcg	gatactttta	attcctgtat	ggtgcaattg	aaatctataa	aagaaattcc	780
aagaagcatg	attctgaggt	tttaattcct	gtatggtgca	attgaaatta	gcaacgaaga	840
cgattttttt	aatgtagta					859

(2) INFORMATION FOR SEQ ID NO:1184

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2277 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1184

cttttttttct	aaatatgcct	tagtggttgca	tttattttgtg	gagtgtacaa	tagaaaaacg	60
aaacttcaga	aaacccttcg	aagttcccat	cctaaatttat	ctaaccgttg	cacttgagac	120
tggaatgtgc	acaacgccct	gatcggggg	caaataggca	tctgctaattg	tcaaccaggt	180
catggcttct	accaccgtac	ggcacgtggc	accacacaag	gatcatgcct	tcccacagct	240
gagaggatat	gcttttctccc	tgttcgttga	cagtctgctg	tttttgccca	atggaggagt	300
cggtttgaat	gctacgcgga	aacgaatata	ctgaccgggtg	ctgtacctcc	gctaataccc	360
cctgaatgat	tggaaagaaa	cgagatgcc	cctcttctgc	agcgaccatc	tgatcatttg	420
cttcggagcc	acgcatggat	gcagggcaaa	tccgtcccca	acttcaaaaac	ccttggtctgc	480
attgatgctt	gcatggctgc	accaagagca	gcatgcagtt	tgccataaag	aggttcaccc	540
aaccaaccgg	aacgtcactt	atttggcaat	cgactatacc	ccccacgcgt	cagattcttt	600
ctttgccgtt	tctattacag	cttccattaa	tccggaacat	taggatcagg	gcagcgaatg	660
ggggaagact	ctacttcttc	agggcttatt	ctttggcatt	ttcttggggt	atacatacag	720
ggccaatctg	tgacgatagg	ctgtacatcg	gattcccaat	ggagccagga	gttgcttggc	780
aacactcctg	ccactacgcg	gacagcgggt	tcgcgggcag	aagaacgtcc	ccccacgag	840
tatcacggat	accatattta	tggaaatatg	tatagtcggc	attcccggac	gaaagatgag	900
ctgagactgt	cgtagtcaag	cagaacgtac	actttattgt	ctatcatgaa	agcaatagga	960
gcaccgggtg	tttctccccg	aataggccgg	agataaaactg	taccatgtca	ctctcctgcc	1020
ggggagaaga	taatgtgact	gccctgggcg	acgacgaagt	aactctcgct	cgatgggtcc	1080
atgtctacaa	aaagccctgc	cggacagccg	tcgatgacac	ctccgatgct	ttgccgtggg	1140
attctccgaa	tgtagtccag	cggataaact	tacctatgta	ttcatctgat	ttataatagc	1200
tgtgtttgtg	acatttctca	cttcaacaga	gtttctgaca	aagagcagat	actgagaaat	1260
taaaaagctc	caagcattgc	tttttagaga	caacggtttg	gagcttttct	ccgtttttatt	1320
gcttgtcccc	atcagtgcga	gccacagtcg	ctgccacagt	tgcaaccatc	tgtgattcac	1380
tttcgcagct	acaaccgcaa	ccacagccgg	agtggcctcc	aagaactgtt	cgatctcttc	1440
tgccgtcgct	tcacgctctt	cgatgatctc	ccgatgaaat	gaagattctc	accggccaaa	1500
ggatgattga	agtcatttac	actacatcgt	ctcgtacttc	cagtacagaa	ccttgcaagg	1560
tattacctcg	gcacgcgcga	tcggcacggg	attgccttcg	tagacgatgg	aagagtcaat	1620
cggccttctt	cgtctttgaa	gatatacttg	ggcaactcca	atacggatct	tcttgacggt	1680
cgccataggc	atcttcgctc	ttaagctcga	agtcgatttg	tcacccacag	ccagcccga	1740
caaatgcttt	tcgaactcgg	gcaaatacata	cccataccat	gtatatagca	caacggcctt	1800
tcggccgttg	cctctccatc	aattctttct	cctctgcca	ccctacatac	aagtcgtagc	1860
taaggtccaca	aattttattg	ctgaaatact	cattttacca	aaattatcat	gtaaaacgcta	1920
ccaaaagtag	tataaaaagg	gatttagtcat	aactgctctt	agaaacagac	gggcaaattt	1980
ccgctctgca	actttcagag	ccatcacttt	cgcacgggca	gcaactggtt	gaatttatag	2040
tagtactctt	tttccaacgt	gcctctgcaa	tttattgtcc	aaactcttat	tgatgatcag	2100
ctccatgcgg	catccgtcaa	ttcggctttt	cgatccatca	gagcacgctt	ttgccgacgt	2160
ctttccacag	ctcgtagcgt	tggtgtccag	ctcgttgtac	agcggagaaa	agcatcggtc	2220
ttcttctgcg	tcagctccag	ttcaaggatg	aagaagcatg	gcgtgggtcat	gaactcc	2277

(2) INFORMATION FOR SEQ ID NO:1185

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 867 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...867

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1185

```

cgtatcatcg aactgacacc gaatgggata atagacaaga tcatgggactc gatgactaca      60
tcaccgaccc gatcgtagca gagatgcgcc aaaagcttac ggccaataag cgtcttttcg      120
gccgcgacga gacgtataag caaacgaagg agagataaac ccgagaagca taatggctgc      180
aacagcctgc tttgtcggg tttgtcacc ctctcgcttt atctatcgct gtttcttcgg      240
atcagttgcg gtccggctta ccaactccct gtacatccgc ttatacatcg gcagtcaca      300
cgaagagcct cggcctcacg cagacatag ccggtcagcg tctcacttcc gtggatccgc      360
cctgcaagaa atcgctgtgc atagaagaag tatttcggga ggcatcttcc gctgtttgtc      420
cagtagctgt tggactacat ctcggggact tgcccgtatt tggcgcgaa aagctcggcc      480
acctcttcca taaagacagc agctcgggtt cgtgttcggt caaaatcgag ccgatgggtt      540
gtcgaagtag gccgtagcgg tagccgttac ggagatcatc atgaattttt cataatgtac      600
caatcgatat cggtcggatt atatgcacga ataccgcgag agtaagcagt tcggcaaggc      660
gcacctcatc atccgtctgc tcgggagtc cgaaccgaaa tagaaaagt cgcgatcagc      720
ctccagcgtg attaacggg ggcaactctg cgagcagaaa tatagacaca tcctttccat      780
acgacgtatc gggcagatag gtacgcagtc gttccgctat gtctgcaccg ttggcaaggg      840
caggatcttc gtgttctgcc cgatcat

```

(2) INFORMATION FOR SEQ ID NO:1186

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 917 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...917

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1186

```

atatggagaa gaatgcactc agctcaaagt cggaaagggc attctctacg gccggaagtc      60
gaaaagggta gtagcccatg caccnaggty gaagtccaca tgctgttgag ttcggcatgt      120
ttgaagtatt ggatcaggct gaagagcgca aaacgaatcc tccgccaagc ccgaaaattc      180
gtcgtgccat cagcggttga tgatggcatc gtctgcccgg cggggttgct cttcatcac      240
acctgtcgg gagggagcga agccaaggac aaggcgcgca aagtgtccat gatggattga      300
cccacagcat ttgcgtcacg gtaagggggc actccgtacc cacaatgcgc cgatcagaac      360
gatgatacag gccacgacgt tgatggtcat cttaaagagga taaaacggcg gatattccga      420
taaagcgatc gtccccacat acggcttttg caatgctgct gaaagaattg tccagaatgg      480
tgatgtcgct gcctcttttg ctacggcagt gccatcgccc atcgagaggc ccacctgtgg      540
cggttgagtg caggagcgtc gttcgtgccc tcgcccgtca cggccaccct tcgtgagctt      600
cctgcagcag gcgtacaagc ctttccttgt ccategcgca gcgcgggaca tgatacgag      660
ttcgccatc cgaggcgca gttcctgtcg gttagggctg cgaaatccga cccggtgatc      720
atattccgct ccgtaagctt tcgtcccaca gccctatttg gcgaccgatc tcccgggcgg      780
taccggtgta tcgcccgta cgattttcac ctgaatgcg gccttcatac agtgctgatc      840
gcttcgggaa cgtcggagcg aatggatcgg ctatgccgac taccatgaa gcggaggtca      900
tgcacgtgga gacgcca

```

(2) INFORMATION FOR SEQ ID NO:1187

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1994 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1994

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1187

```

agatcaaggg ggcgcatcatc ggccgagagg gtcgcaacat ccgtgcattg aggctgctgc      60
cggatatagag atcattgtag acgatacgcc ggaagcgacg tcttatcggg attcgatccg      120
gtgcgctcgtg agatagcgcg tctggcatgc atcagttggt acaggatgga cgtatccacc      180
cggcacgcat agaagagtgg tatccaaaagt aagaaaacag gtggaagaag agatcatcga      240
gacggcaaac ggacggtgat cgacettgga atccacggtc tgcattccgga actgtccgtc      300
tgatcggtaa gatgaagtat cgctcttccct atgggcagaa tctttgcagc attcgcgtga      360
gacagctaac ctctgtgcca taatggccag cgattggggc tgaatccgaa aaaagccaaa      420
cgcgcgggtc tgctgcacga ctcggcaagg tgcccagcga tgagccggaa ttgccacacg      480
ctctcttagg atgaaggtct gtgagaagtt caaagagaaa cccgacatat gcaacgccgg      540
ggagcgcacc acgatgaggt ggaaatgatg tctcatagc tcttatcgac aggtgtgcga      600
cgccattagc ggcgcgcgct cgggagcacg ccgtgagtcg tggaagccta tatcaagcgt      660
ctgaatgatc tggagcaact cgccattccct atccgggctg tatcaagacc tatgtattc      720
aggccggccg cgaaccctgt tgatcgtcgg tgccgacaag acggacgatg cctcggtgga      780
aacgtctcga acgaaatagc caaaaagaatc caggacgaga tgacctacc cggcaagtga      840
agatcacagt gatccgcgaa tctcgctccg tcagctacgc caataatccc gcacaccggt      900
ggatagtacc tgctcgcgat atgtggcggt ttgatttata cctcctccta tcagcagcac      960
tagaggacta cgccggacaa gcaaaagacg gatggactac cgattagaca atacgacgac      1020
ctccctgaca aggatgcctg caaggggtgt catagccagc cgctcagcac ttatgactgc      1080
tgaatgacat ccccgatttg cccgaagatg gccgattcgt ggaggttaagt tcaagaatac      1140
gcgcaaagga tactacctca acagcgagag gatagactgc acaaagggga tggtagtagc      1200
gtagaggcca atccgggtca cgacacggga cagtgcgct gaccggcaag ttggtaaaac      1260
tccagatgcg taagatcgat acaatacgaa caacggcgag cctttcaaaa tataccgcat      1320
agcaaacagg gcgatctgga taagtactgc gaagcaaagg cgcgagagta cgtacgatga      1380
ttcagtcccc tcagatttct gccgagctga atctggacat gagatcggag atgtggagta      1440
tcagggcgat ggcaataagg ccatttttcta tatatcgccg atgagcgcgt ggactttcgc      1500
caactgatcc gagtattgga gagaccttcc atatccgcgt ggagatgaag cagatcgggtg      1560
caaggcagag gccggccgta taggcggtat cggctcctgt ggccgccagc tgtgctgtcg      1620
gcctggaaga tgaatttcgt atcgggtgaat acgagtgcag cccgcttcaa gacttagctc      1680
tcaatcctca gaagctcacg ggcctctgcg ccaagtcaaa tgctgcctca attatgaggt      1740
ggatgcttat gtggaagctc gtaaaagatg ccgagtcagg agatcgtctt ggagacgaaa      1800
gaaagtgcgt accctatttc aaggcggatg tattccgctg ggaggtttcg tattctaccg      1860
ttccaatgct ccggtcaatc ttacgactat atcggctcgt cgtgctttcg agtgatcagc      1920
cagaacaagc aggggttcaa gccggtatcg ctggagtatg cgacaagaag cagtcgtccg      1980
gacacgaatt gtcc                                     1994

```

(2) INFORMATION FOR SEQ ID NO:1188

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2031 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2031

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1188

```

cgaggttgat ttttgcattg ggaaaaacga tcatggctca actatttgaa tcgattattc      60
gtcatgcaaa ggcatacgcg aggatgaaaa gaacagccga atgtaaagag gcagggatat      120
actgcggtat tgtccggaca agagtttaca aagacgaatg ccaacatccc caaggccatt      180
ccctctgcga tagagtgggtg agtaccattg tcagcagtggt gatgaagacg ggaaaagtct      240
cggacgggtcg gacaaatcga tcatcgaaat ggatccgagc ataaataccc ctacattaca      300
agagcacctg tcgtagctgc acctgggaca aggagaaaca gggcgacaga aaaagagcca      360
acaggaaaaa gctgcccgtg accaatgccg tcaaccggtt cgtcctcctt cggcaatgcc      420
cgatccgctc tccacataag tgttaccgtg gaggtgcccc gtatggcacc gaggcttgta      480
ccgatggcat ggccatcatg gcctgcttga tattcttgac attccctttt tcgtccatct      540
ttcagtcttg gcagctgctc cgatcagtggt gccgatcgta ttgaaaattc catgaagacg      600
agagcgaata tcgtcatagc catatcgaaac gaaaggaagg ggcgaaatcc atttgcagga      660
aagtgggact taggctctgc ggagagagat agggggcaaat ccttcgggaa tggctgtcac      720
tcccagcgga atgccacgat cgtacaaatg gcgatactgt agaacaaaagc ccctcgaccc      780
ttgccacgac cagtgcgcgcg ctgaggatga taccgaggat ggccagcaag aattcggagt      840
gaaaggcccg agagcgacca atgtagccgg atgggatacg atataccggc gttcttcagt      900
ccgatgaaag cgataaacat gccgataacc gcgagatagc atagcgcaga ttgtaaggaa      960
tgcaatcgac gatcttctca ggatattgaa tgccgtcagc aggatgaaga cgatcccctc     1020
cacaaagacg cagccagtgc agtctgccaa gagtagccca tgccttgaac cagagtgagg     1080
cgaagaaaagc gttgattccc atgctcggag cttgagcgaa gggcagctgg ccaaaaatgc     1140
aatcagcagc gtagccacgg ccgaagaaaag tgccgtgccg tgaatacggc tcctttgtcc     1200
atccctgctg cagcaagaat atcaggttga ccgccaaagt gtaactcatg gtcaggaaaag     1260
tggtcaccoc tgcataaaact ccgttcggac ggagtgcctc tcgggattga atccgagaat     1320
ggatgccaaag ttttcatttt ttactgaaga gtttcgttca gttgaaagtc cattgaccgc     1380
aagagtaggg atgcaggaga atttgtccat gcgagcgaag tcctgtgatg ttccatctct     1440
gtccctatgc tgagattgaa atccttgcg tgcccttgat gcgattgagg ttgatccaga     1500
actgcggttc ggacaggaaa cgaacttata cccttctttg agcacagggc ccccgattgg     1560
gttctcttgg ggaaacccca aagatcgagg aagccgttga aggtaagcag accgtccgaa     1620
aggtgcatgt accaagtgcc ggtgatctga taggtgtgga agtcgtcgca cccagatgct     1680
tgtacatggg cgtgatcgta aatccacgtg taaagagggg ttgttgtagg tgtaggtggc     1740
accgattaga gcactggtgc cgaagtaaaag cttgtggaga ggcctccgtt gtactccaaa     1800
tgaatggaaa cggagcttgc caaaacttca gttcgcgcga aatctcccaa taggccgact     1860
ggtacccttg cccgtgtaat ccatgtcgat gaagaagaag gtgcttcccc attgtcgggt     1920
gtgaagtttt ccactgtggt agtcagtttg ggacgtccat tagttcgtcg tagatggaat     1980
gaccgaaatc gtagtgcaac tgcacgtttg tgcgttggca cataggccga g                2031

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(2) INFORMATION FOR SEQ ID NO:1189

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 956 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1189

cagcaacagc	aaggaggagg	agccatcagg	atcagaataa	ggagaataac	acgacaaaaa	60
acaaccgcaa	aaacaatccg	aataccaata	nccaggggcg	cagcagcagc	cccaaccgtc	120
caaacaggac	aatacacaaa	aagatcacag	ccacgacaga	atgaaatgag	tcgtgaaagt	180
gctgaaaaga	tattgaagcc	tacgaacagg	acgaggagaa	aacgcgcgaa	aaagttgagc	240
agatggtaag	cagcgcatga	agcagcaaaa	aggtaattcc	accaagcagt	ggtatccgct	300
tctttgcgat	tagctgtttc	aatcttggtt	tctccgcaca	gctcagaaa	taatgtgtac	360
tttagcatcc	tcttcataaa	agcaatgact	cacggaagaa	cgcttcggat	aatttttaat	420
gccggtgtta	agaaacaaaa	cgatctcaat	aatcactgac	tgtactgtac	gatgacaaag	480
gtgcgatata	tcttacaacc	cttttcttat	gcctcgcttg	gtgtacccat	gcgcagggtc	540
tttcaactga	caagctcctg	cgagtgtggc	gatgggagaa	caattcagg	gagttttacc	600
ctcaaagatg	ctaattggaac	ggaattcaaa	gctcctgcat	gagcgacttt	gaagtccttt	660
ttggcccggc	cactgctaca	agctcatcag	ttccatttcc	aacggcaaga	ccactttgtc	720
tcgaagtatc	acttaacata	taccctgatg	cccaaatcgg	tcggcacctt	tcagatcggt	780
ccggctccat	ccgtgccaac	gaccgagatt	ataagaccaa	gcaggatatcc	atcagggtgt	840
tccggccgat	aaaaaatcat	cgaaaaatac	taagtcttcc	tctcttctc	acgagtcgat	900
gccgtagttt	gttgtccgaa	ccatcatcaa	tagaccaatg	tacgagcagg	aagcga	956

(2) INFORMATION FOR SEQ ID NO:1190

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2367 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1190

ggtcaaaagag	tttgaaagga	tctgattctg	agcgatagcc	caagagattc	atggtcttct	60
gtcctaattct	gcatcaatgt	atgctcgaat	gcgagtgtct	ctcttgaggt	atctgtgccg	120
gatttgttcg	ttgcaatgta	ttgagagacc	gtgcgttaag	tgcaaaatga	aggctgtgcg	180
gtgaggggaga	accctcgcac	agccttcggc	ttgtaatgtg	atatgaatgt	cctacaggat	240
attttttcga	aaggaaatcaa	aaacgcattc	tgttcgcacc	gatgtttaca	tcacccgccc	300
attcctccca	tacctccggg	catggccggt	gcggcaggat	tatttctttc	ttgtcagcga	360
taacgcactc	cgtagtcagg	aacatacctg	cgtagacgct	gcattttcca	atgctacacg	420
tgttactttg	gccgggtcga	tacaccggta	gtgtagaggt	tttcgaaaac	atccgtacgg	480
gcattgtagc	gaagtcgtcc	ttgccttctt	tcaccttctg	taccacaacg	gcacctctt	540
accggcggtc	gctacgatct	gacgaagcgg	ctcctcgatg	gcgcgtttac	gatctcgata	600
cctgtggttt	cgtcttcggt	ctcacccttg	agaccttcaa	agcagctatg	gcacgaatgt	660
atgccgtacc	gccaccgggt	actgtacctc	ttcgattgca	gcacgcgttg	cactcaaggc	720
atctttctacg	cgatcttctt	ttccttcatt	ttcacttcgc	tggcagcacc	cacgtaaaga	780
acagtacacc	gccggcgagc	ttggccaaac	gttcttgacg	cttttcgcgg	tcgagtcgct	840
ggtcgtattc	tcgatctgag	ctttgatctg	cgtgatacgt	gagcgatgcc	ttctttgttt	900
ccggctccgt	taacgatagt	agtattgtcc	tatcaaccgt	tactttctca	gctgtaccga	960
gcatatccat	cgtagcattt	cgagcttcag	accggtctct	tcgctgataa	ccgttccgcc	1020
cgtcaggatg	caatgtcttc	gagcatagcc	ttgcgacgat	cgccgaatcc	gggagcctca	1080
ctgcacagat	cttgaggctg	ccgcgcagac	ggtttacaac	caagggtcga	gtgcttcgct	1140
gtcgatgtct	tctgcaatga	tgaggagggg	cttgccgtct	gaaccgtttg	ttcgaggatc	1200
gggagcatct	ctttcaggac	ggatatttct	tgctcgtagat	gaggatgaaa	ggattttcca	1260
tttgacctc	catctatccg	tgttcggttac	gaagtaggga	gagatgtagc	cgcggtcgaa	1320
ctgatacctt	ccaccacttc	taccgtagtg	tcggttccct	tggtttcttc	tacgtgataa	1380
cgccttcttt	cttcaccttg	cgcatggctt	cggcaatgag	gtaccgatgt	tttcgtctcc	1440

gttggcagag	atcttggcta	cgtgctcgat	ttctggaagt	cgtcgcccac	ttccttagcc	1500
atacctgcaa	tgtgagttac	acagccttta	cagccttgtc	gataccacgc	ttcaaatcca	1560
tcggaattgct	cctgccgtaa	cgttcttcag	acccacgccc	ataatgctct	gggcgagatc	1620
gtagccgtag	tcgtaccgtc	accggcatcg	tcattgggtct	tggagggtact	tctttcacca	1680
actgggcacc	catgttctcg	aacggggcact	ccaatctatc	tctttcgcta	cgctcacacc	1740
gtccttggtta	atgtgcggag	ctcctacggtc	ttgctaagga	taacattacg	acctttcggc	1800
ccgagggttaa	cttaacggca	tttgccagtg	catctacgcc	cttcttcaga	aggtcgcgag	1860
atccatatcg	aatttgattt	cttttgccat	agtctttatt	atattattatt	tttttttttc	1920
ttttttggag	gattattgtc	tcttccttta	ccactgggggt	tctgtttttt	gaaggccaac	1980
ctgcagtgtt	aacttgttct	gatttttttt	tttgcccat	agatgattgc	caagacatcg	2040
ttttggcgca	tgatgataat	ttttcacctt	ccagctctat	ttcagtgcgc	gcataattgc	2100
cgtagagacg	gtgtctcctg	ctttgagcac	catctcttcg	tctttcgtgc	cgttccgaca	2160
gcgattactt	cacccttgag	aggtttctct	ttggccgaat	cgggataatg	atcccgctca	2220
ctgttttttc	ttctgctgca	gccggcttta	caagacgccc	tctgccaatg	gtttgatggt	2280
cattgttgct	tggtttggtta	ttgtagtgtg	ttgtttgcct	gtacaaatgg	gaagcctctt	2340
atgtagctcc	gcatttttat	gtcaata				2367

(2) INFORMATION FOR SEQ ID NO:1191

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1244 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1244

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1191

cggtctgtct	ccaacagtgg	gcggtcatta	ttcctcttcg	tcaagtancg	tagctttcaa	60
ctggacaccg	tatcactcat	aaacgttgag	gatcgaatgt	ttcgccggat	tatttcctgt	120
tatttcgtgt	ctatggagcc	gatggttttc	gccggaagag	atggcggaac	gattcggcaa	180
acttcacatg	aacgattcca	acgggactac	tatctctcgc	gcaatgccct	cgactatgtg	240
gagaagtcaa	tggcgaagga	cgagaaaagcg	accgccgcta	cataggcatg	tcggtagcat	300
caactacaat	atgggtatccg	ttgtcgatgg	cgtcctaaagc	gaaagagtat	ccgatacaat	360
cagacactgc	gaggactcat	accggatcac	ccaaaaacga	agccgaaagt	accggctata	420
tcagcctaaa	gcccatcacc	gggagtacat	ttcgcaaaac	gaactcatat	cttactccgt	480
ctatctgcgt	tctctcccga	agcggatacg	ccggacttca	aagagcagtt	cgtgaaaaga	540
tgaaagccgt	gaccaaggac	gatacctatc	ctgtactgac	gatgaatgtg	tcagtgaaga	600
ccgggcaggg	atattggccg	atcctgtccg	gcagatcata	atcatctggc	catcggtttc	660
ttccttctgc	tcaatatatt	cctcggatcg	tcggcacctt	ctgggtgcga	accgagcagc	720
gacgcgccga	agtagaatcc	gccgtgtagt	gggatccacg	aacaggagcg	tattctcgct	780
catgtcggcg	aggggattat	actgatgaca	ctggctttcc	tgcttgcggc	cgtgccgcat	840
ggtacgtcat	gttccatacc	gatctttgcg	acatcaaggt	gttctctctg	gccggggacg	900
tcttttgctc	ggattgggggt	gtacttattt	gagatgctgc	tgatgggttt	tctcgttact	960
ttcattcccg	tactgcgtgc	ttgcgtgtgc	ctccgaccga	agctatccgc	agcgagtaga	1020
ggtagatgga	tccattcccc	cacgttctcc	ctatacctta	ttatatatag	cagctacgaa	1080
cggccgtatc	gtagtacaac	cgatccgtcc	ggtctcgaag	ggcaggaccg	aaacaggact	1140
cctgcccctt	tgccgtcagg	cctttgtttg	cagtttcaaa	ccgaaaaaga	gacaaaacct	1200
tcgttcataa	taggagattt	gattcgnntt	ctaccttggt	ggcc		1244

(2) INFORMATION FOR SEQ ID NO:1192

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1067 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1067

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1192

aagtgtggct	gtccaccacc	accgccctgt	atatgcttgg	cggcacttct	accagtttgg	60
ctgcatccat	ccctccctcc	gtgagatctt	tcgaaagctc	actgtcagcg	cgcatttttc	120
accaccttcg	gtcgttcccg	ctatgagacg	aagctctctt	gcagttcgcc	ggcaatttgg	180
aaagctatat	ccttggcgct	tctgcctcca	tgatctcctg	aaagaggaaa	agacggatac	240
cacgggacga	acatcctgct	cgagaagcga	ctttttgaac	ttcagcatgc	gctctgcttc	300
atgtccgcta	tctgtttttt	cagacttgca	tcctcttcga	gcatttcttg	atggacttga	360
tcaggttcgg	attgttggtg	aacagctcct	ttcagccagc	agaatatctt	ctttctcgta	420
tatgaaacgt	tcggcaccga	tcccgttacg	gcttcgattc	gacgaacccc	cgatgctatc	480
gaactttcgg	aacgatacgg	aatgcccaga	tcatgcctgt	agagggaata	tgtgtacctc	540
gcacaactct	accgaagagc	cgtacttgag	tacgcgcact	tcttcgccta	cttctctccg	600
aagagggcca	tggctcccat	agcctgtgct	tcggcaacgg	cacatcgcca	aactcttccc	660
gttggaagtc	ggcacgtatc	cgctcgatac	caattcttcc	accttgccga	tctcctccgg	720
agacatcttg	ccgaatggga	gaagtcgaaa	cgaagcacct	ccgggctgac	aaacgaaccc	780
ttctctccac	atgcgttccg	aggacttcgc	gcagagcttc	gtgcagcaag	tgctagccgt	840
atggttggcc	tctgcctggc	ggcgtttgtc	ctgattgatc	cggccacgaa	agtatccgct	900
gtgctttcgg	gcaatttctt	catcaggtgt	acgagaggtt	gttttcgcgt	ttggtgtcga	960
atatatcata	ggctacaccc	attcgtcgat	cagctgaccg	ctgtcgccta	cctgcccacc	1020
catctctgct	agaaaggagt	gtccgagagt	accacctgaa	agtatttc		1067

(2) INFORMATION FOR SEQ ID NO:1193

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3171 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3171

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1193

gggacatcga	cttgcttcgt	ctcaatctga	ctgaatactt	accggattcg	cttcctcttg	60
tattattctg	acaggcatga	gcggtaacga	acagaccgga	ggatcgcgac	ggaattggta	120
agttcattcg	agaaaaagg	aaagaattcc	aaattctcca	ccttgaagaa	tcggacgctg	180
cactcaaaga	gatgacgctt	tgcgtgaaaa	gggtatatct	gttttcgcta	ttgctccgag	240
tgtagacgta	gtgctttggc	tgttgaagtt	agctttgggg	cggatgtttc	cttgtgttgg	300
ctgaaagtat	gcactcgaag	agaaatgata	aagacgaagt	tgagcattta	tctgccaaag	360

ccgctgtcct	gctttttgtgc	tatggttgga	tagtattaag	ggggcattca	tctctctaac	420
tcaaaaattat	tatgggtatt	accggagcat	attagacacc	gatctatata	aattcaccac	480
cggctatgcc	atgccaagct	attccccaga	gcttatggcg	aatttcgctt	catagaccga	540
atcggcaggg	ctttacggaa	gaattttgcg	agctgggtgcg	aggtgaaaac	gagcgatggc	600
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ccgatatata	tcgattttct	cgatggttcc	gtttcgatcc	ggaagaagtt	acagtatcga	720
tagacgcaca	aggcccttgg	atatacgagc	gcaaggcctt	ctctaccgag	tgacactttg	780
ggagcgccta	tccttgccgt	catcagcgag	ctgtactatc	gttttatttg	agcgagccgg	840
attggaaaaca	agtagaagag	gtaactcgat	ctaaagggga	gcgatgcbag	agcatcgagc	900
tacgtttctcg	atattcggta	tgcggcggcg	ttctcccttg	aagtgggaaga	ccgtgtgacg	960
gatattctca	agcagtatgc	ggtgagagtc	tctttggtac	gagcaacgta	caccttgccc	1020
ataagcatgg	ctacgtgttt	ccggcacaca	tccacacgaa	tggatacaat	tccatggact	1080
atttacggct	ataagatggc	caattatgta	gccatggagg	attggataat	gtctatgacg	1140
gtgatcttgg	cactgtgctg	accgatacgt	acacgatgat	gtcttcacgc	gcaatttcag	1200
taagaagcat	gccatgctct	ttaccgtctg	agacatgaca	gtggtgatcc	cgagatattc	1260
atagaaaaag	cagtcgacga	tacgaagagc	tgcgagtggga	tcccaaaatc	aagtacatta	1320
tatctctgac	agcctcactc	ctcagcgagc	tatagagatt	caaaagttgt	gcccggcagg	1380
attaaggcca	gcttttgaat	cggtaaccaat	ctgaccaatg	agtggggggg	ggcgtagagc	1440
cgttgaatat	cgtaatgaag	ctctggaagt	caagatgacg	gcgaaagacg	actggcacta	1500
ctgtgtaaaag	ctgagcgact	cgatggtaag	catacgggag	agccggaaga	aatccttttg	1560
gcgatgaaac	actgggtatc	aaaccgaaat	aatgctgacg	ggactattct	tcggatcttc	1620
aatccgatgc	atatcggtca	tttggcactg	gcccaattatc	tgacagatac	actccgatcg	1680
gacagttgtg	gttcgtacca	agcccgttga	acccttaaaa	aatacccaag	agctgctccc	1740
gtacgatctg	cgttgcgagc	tgatgagcaa	gccattcgta	aggatatccg	ttttcaagtt	1800
ctgcgcattg	aaggctgctc	ccttctcctc	actacacgat	acggacgctt	cgtgctctct	1860
cctgtctgtat	cctcatcctc	ggttcgccct	cctgatcggg	gcggacaact	gcagagcttc	1920
gatcgatgga	aggatcatca	tcggctgatg	gccaaatacg	gctaatacata	taccctcggg	1980
tcggctatga	agtagacgat	acgacgcttc	gaccggatgt	cgatacatac	atgatgcccc	2040
gcgaatagaa	atctcctcac	ccaaatcagg	acaagcatat	tggaaggaaa	agatctacgc	2100
tattggcacc	tctccctgag	tctcaggacg	tcatagcatc	tgccctgcaa	agttgtttgc	2160
accaaaaccg	tgaaaaaaga	caagctatgg	aagaagaaa	aatggcacgc	tcgtctgctc	2220
gcaaagcaat	gctttggcag	aagaactcca	acgatgcttg	ccgagacagg	catcacggcc	2280
tattttgcgta	atgaatacac	caacgtatca	taggccctat	gtgcgatgtc	ggcgggtgtga	2340
gaattgaatt	ggcgaaagcg	acctcgaggc	tgctcgtatt	gttttggcgg	agtccggatt	2400
gcattggcag	aaccggagca	gaccccagta	gggcgtatca	gccgatgggc	gacaacttgc	2460
ctctcctgcg	caatcgtcct	ttggaacaac	ggttatggac	attacgggac	tgctcctggg	2520
ccttctcgga	ctgctttcca	tcatactcat	ctcttaagct	aaagcaatat	gccaggcgtc	2580
aaaccgctta	gtaacagcag	attatttcta	tcgcaactct	ttggatactg	ctcgtagtct	2640
atgccatggg	gcaggaaaac	cgagtggaca	attatttttc	ggcatcatcg	cctccgtatc	2700
atcgtaattg	tcactatcta	caaagacatt	cgtcgcagag	gaaatagaac	gactcgccac	2760
ttttctctct	gatatcactc	tcattacaat	ccctgtatca	ttgttctcgt	aagtctctca	2820
ccttttttct	tgcccttgcta	tttgtgttat	ggttcttttt	agctgtggca	ccaagcgaaa	2880
actgccttca	cagtcacacg	cgattatccc	aagcgggag	tccgtgcagc	ttggatccaa	2940
ccgtctatca	gggagaatac	gctcgtctct	ctcctgcgga	agcacgtcgc	tgctgatcgg	3000
gaggttggat	aaactcaaag	aagccggctg	taatgcgaca	ttttccagat	caggccccgan	3060
agcgatgcct	ggtacgaatc	cgctataagc	cgtggagccg	tttcttgaca	ggccgacagg	3120
gacaagcccc	tacgcctttt	gggatccact	ggcttttatg	gtcagcgaat	g	3171

(2) INFORMATION FOR SEQ ID NO:1194

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2303 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1194

gacggctctc	caacattcat	acctttgacg	ccatgccttg	cctaggcaca	gcattgacga	60
cttggatgta	tctctcattc	gtaaggagtt	tttgcctcagg	ctgtggcaga	ggatgttctc	120
ggtgaagaca	aacgagatat	cacggataat	ttgcctctct	tggcttatat	gattttgcgtt	180
ataactgtcc	gactaagggg	ctattgtcct	attcggaag	aatcctgagc	gacacgtaca	240
tgggggtata	ttcaatatgt	tcgcttcaag	ggtaaggatc	gtgcgggtga	tatttcaacg	300
aacataagtt	tagcggtaat	ctttgtcggg	tattgcctaa	gatgatgctt	ttgtcgagac	360
aagtatctca	caaaagcgtc	ccattcccg	gatgtacttc	gggaagaaac	agtttccaag	420
tatccatact	gggctactcg	aagttgttga	tgaatgccat	tatgcacagg	gattacgagg	480
gaaacgctcc	attcagtttt	atgagtatga	tgatcgcatt	gagatccaaa	accccgccga	540
ttgtacggca	aggtcagtc	cgacaatttc	cccaatgtta	gcgattatgg	aatcccttta	600
ttgccgaagc	aatgaaagtc	ttgggctatg	taaaccgttc	agccgtggag	tctatcgagt	660
tcagaaggag	ttggaagaaa	acggtaacggg	caagcctctt	ttgatttttc	attgattaca	720
gcttttcgag	tagtcagaac	gtttctcaaa	agtattttga	agaaggcttt	gggggagaaa	780
cagccaagaa	aagcacagga	aagacccaag	aaaagcccaa	gaaatataga	ggagaaatat	840
tggatgaaat	aaaagacttt	ccgcaagtta	caaggaaaga	ttagaaaaaa	ggttaaacag	900
aacggaggat	agtattcgtt	attatcttag	gggatggtta	aagaaggagt	tatcaagcac	960
gaaggctcta	caaaggcagg	aagtggataa	tagtcaaata	gaatgtgaag	aagggtgtgt	1020
acataatatg	agcggctctt	tattgcttgt	attggttgtc	gtgctcacag	gagcactctt	1080
ccgagaatca	gaacgaagac	aaaacagtg	attttgaatg	ctcctgtgat	gtcgtttttg	1140
ctatcgtgac	caacaataca	gaatggcatt	acagaattct	ttggatgatt	tggagatcat	1200
ccgtatccaa	ggggatattg	aagaaggcga	agagactgcc	aatggcgtaa	ctatcagatt	1260
caagacactt	gagagagacc	gcattctttc	tacagttttg	agatggatag	taaaatgttc	1320
acaggaagtg	gcaagcaata	tttgaaccga	tgggaaggagg	taaaacccta	ttactgcaac	1380
agaaaagata	gaatacaaga	acctgttcta	tcgttttggt	ggtatgcttt	tatggactta	1440
aacaagttta	tgaccacata	ccaagaagaa	tcacagctcg	aatagaactt	gaaaaagcag	1500
agcaataaag	acgatataac	gattgtttgt	aatagattta	agaaatcaga	tttgtaccat	1560
ataattgcat	acgctgtaaa	tcaatataga	tttgttttga	ggaagaagaa	gggtaagtac	1620
ttgctttcgt	tagctgcaat	ggccgtattg	agagcggagc	aaaaagatca	gcctcttgga	1680
acgcaatgaa	tgagaccccc	gtattagtcc	tgagtctaca	ttgtacttgc	tgttttggcc	1740
aagttcggca	cccatgtaat	ccgaagagga	cgcccttttg	tcgtgtagaa	tccgtatgca	1800
attaccttgc	gcagggtttc	gtctcttcac	cgataaggta	ggcttccggc	tgcaaaccce	1860
taaatcgagt	ataataagaa	gtatgtgcct	aagtaataac	cagacaaatt	gcaagagaga	1920
aaatccacaa	gataagtgt	atgatcgta	caacgatgta	aatatcgaga	tccaaaatct	1980
ggctccacgc	ttttcagaga	accctcgag	tagaattttt	tctgggttgt	cattttttcag	2040
tcttggttat	tgttttcgtg	gccctgttca	tttctctaca	gaatgcctcc	ggctggtaaa	2100
gctcgacaaa	gtatgggttt	tcattggagag	tagttttact	cttcgagtgt	gggtttatca	2160
cattcggctc	ggacatactc	cgtcagaggt	tttctctcag	tgagtttcgt	ccaaagccga	2220
ctatccaacg	cagtcgcccc	ttttcttcat	caatactact	gccaccggca	tacaagccca	2280
caggatgagt	gcaggaatgt	aaa				2303

(2) INFORMATION FOR SEQ ID NO:1195

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 706 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...706

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1195

atcggagcta	agctctaccg	ttatgcagga	gatagagagg	taattctcta	gtacttgcca	60
atatcctcac	ccttcaaagc	agcattgcta	taccgacttg	tatttcttca	agctctctct	120
tccgcttttg	gtcactttcc	gtatctactt	tcgggtaata	ccatcttttt	catcctgaaa	180
agcatttttg	aattttccagc	aagttcgatg	aagattttcc	cttttatctc	ttggagtttc	240
tcctctcaag	ctctcctttg	gcaaaaagtc	tatcagggaa	taagcccacc	ttttagaagt	300
ttcttctgga	acatctttgc	catctcgatg	tggagagaga	acccaaagct	tccttccggt	360
cgctcttctt	tgggtagtct	ttcgagcaat	tccgcattat	ccaagagaag	aggtagctcg	420
ccgtccaaaa	ggacttcacg	ctcgagcctt	gtctaagggt	ttacatatcg	gcccattggt	480
tattgctgtg	atatctcatt	actcatgaca	attcttattt	aattgctcgt	aaatgtcttc	540
atggtctcga	aaatctcctt	tgcacccgtt	aatgaatcat	attcacctct	tgagattcaa	600
aattaactct	gagaatattc	attaaaacat	tgatagacaa	tatcttcttg	aacttaactc	660
taagacagcc	ccttatgcct	ggatgattac	tacaacctgc	ctcctt		706

(2) INFORMATION FOR SEQ ID NO:1196

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1822 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1196

ttcgccaaaag	accgaaccat	accggctgag	tgggaacctta	atgccacggc	ttcttttctc	60
cttcgctgca	ggaagccgat	ctgatgagac	gaatcatgct	gocgatactt	accggcaatg	120
gttcgaacag	ttttttacga	ccgaggggtg	gaacgtctgt	gtacacctnc	catcgatatc	180
gatctgaacg	actatccata	gtccatctcg	taggactttc	cttttccaga	gcgtgggtgta	240
tgggactata	cgagggcctt	accggcgcaat	gatggcatcg	gaatgcggat	gcgaaaagca	300
gccaaagcggc	attacgaaga	gggcatgaag	cagatattca	atacaattat	ggtggcgatc	360
attggctggg	gagctttgcc	gcctacgcct	ataggagata	aagtggctga	tcgatccggc	420
gtaatgagat	gagatattcg	tagaacgatg	gagatagttt	tttcgatcaa	gtatcgagcc	480
gattggggggc	acgcctctgc	atatcgggct	cttcggccga	attgggaaat	tgggatgaac	540
acttgccctg	gagctgacag	caacgggcga	ggacagatgg	gaaggaaactg	tgatcataga	600
cggtcgcgcg	aaggatatac	agtattacta	tctggtagag	acgccgaagg	caacgccatt	660
cgcaaggagt	ggaaacgcat	gcaccactgg	tattggatca	tggttacaag	cgagtgtctga	720
tggacgatta	ctggacgatc	gaccgaaaaa	tgcacctttt	ttcagttctg	ctttttacga	780
tgtttcttcc	gccatgagga	gaagctgaaa	cgtgccccga	aaccaacgaa	agaggcgctca	840
aagtcgtcat	gcagctatat	gctccatgtg	ttcaccgccga	ccgaagatct	gtatgacggg	900
caatagtcct	gctcttgcca	actggtcagt	gagcaagccc	gtgccatgca	ccatttgagg	960
aaggggcgaat	ggtctatcac	ctagagaagg	atgaattacc	tccacttttg	gaatataagt	1020
ttttcattgc	ggacaagacg	actgctccga	catccgtttg	gaagagggag	aaaacagact	1080
taccgattcg	aagagacgga	tgcctatggt	gccgtctatt	tggccggctc	tgtttcccg	1140
agggtgatta	tatgccacgc	tatgccggca	ctatccaccc	ctattcggac	tgcgcaccca	1200
caaggattgg	ggcataggag	acttcgtgca	ctncccgta	tggtggactg	ggcggcaatg	1260
accggccagc	gcataatacag	ctcctgccca	tcaacgacac	cacttacaca	cgctcctatc	1320
gcgctcctat	ccatataata	tagtatcggt	catcgccatc	catcctatct	atccgatttg	1380
gatgcgctac	cacgactgaa	gaatagtgt	ctgatggcaa	aatggagaag	caggccgaag	1440
cactgagggc	actcaagcaa	atggattatc	ggctgtgttg	gctctgaagg	aggaatttct	1500
gcatgccttg	tatcgacaga	aggggcgaat	gtgatgcgca	agaaagcttt	ccgtcaattc	1560
gtctcagcgc	ggccgattgg	ttggatccat	atgcggcttt	ttgccatctg	cgcgacagta	1620
cgagggactg	ccactccatc	tgtggcctga	atatacgtgg	ggaaaaacca	aatcgaaacga	1680
atggcgggat	ctcccgaact	gaaaacggag	accaatacta	tcgcttcgta	caatttttac	1740
tccacgagca	gctgcatgcc	gtatggccta	tgccgaagaa	aaagggatcc	tactcaaagg	1800
agatataccg	atcgagtcat	cc				1822

(2) INFORMATION FOR SEQ ID NO:1197

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 801 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...801

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1197

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accgaaaatg ccgagattgt tgacgtgtac tgaaaaaagt tgacagttgg cgggatgcaa      60
ccagtatcca ttatgggcaa acatttaaac aactttgacg ccttagcatc cttgaggatt      120
acctctcggg gtcagatagc aaagtagcat tgagcagaaa tatggtctaa gtcattggtct      180
cattcgctct tggcttgtaa atttggactc gaagataaag ttcattccggc cccaatgaaa      240
gtgtccaatc cccccagagt gagctacccc tgaacgaaaa agaagagtta gagcgctacg      300
taaagaaaaat cgtgtcctca agagtctgtc caagcgagaa gaatagggca tcaagcctac      360
aagctacttg tagagttggc agaagaaacc taggcattca gatacgaaaa aactccgaag      420
ccaagtagtt caccgtttat cgagccagag cctaggtatc ctattgctcg actctgcgaa      480
ctgcttggct tagccgtcag gccttttata aacgtcatct caacgattta gctaggcaca      540
ggaggatgtc ctatgcagta gtatcatcca atattggttg cacttaagca agcagagcac      600
ctacctcaag ccggcttccg agagctcatg gtgcttttca gcaatacttc ggccccaagt      660
tcacgcttgg gcgcgatcgc ttttgccctc actcagacgc catggtatga tgctgcgcaa      720
acggtctgtg cgccccggac aaccaactct cggcataggc tctacaagta tgaagacctg      780
ctcatacaga gcctaagttt g

```

(2) INFORMATION FOR SEQ ID NO:1198

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2477 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2477

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1198

```

gccagaact cctctttact cctctcctta ttttgcaaag gtctctataa ggaaagagac      60
taaaattttc aaacgcgac gtccgtgctgc attgtccatt agaaaatatt cttatatattg      120
caccgtcatt aagagatgcc tcatgtattc ttgattagga gagatggcag agtggtcgat      180
tgccggcggtc ttgaaaccgt tgaactgcga ggttcggggg gttcgaatcc ctctctctcc      240

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gcaataagg	tgtaaatcag	cgagttatgc	gatttacacc	cttttctaca	cccaaaatgc	300
cgatagccta	taagacgata	aacgagccct	tggagcttct	tgaggagccc	aaagggctcg	360
gcttggttttc	ccacattctc	ctaatacatc	ctccctttcc	taggctattc	gggctgtctc	420
atttcgccta	tacatttgca	ggtcagagct	attcaagacg	atgcttgaag	actctcgaag	480
gctcataaag	ctcattcaat	tggattgaca	ccgcaatgta	taagcaacta	tgacactacc	540
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caaccataaa	taaagaatgg	tcggacggaa	ggagtgccta	agtaaacgtc	cgaccgacca	1980
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ccccggggatc	ctctaga					2477

(2) INFORMATION FOR SEQ ID NO:1199

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2727 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2727

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1199

tcacgggttg	cgataaaattt	cttttctctca	accttcgttaa	tgaggtagca	ccatcgcgga	60
aaaagatgat	gacatcgctg	aggctggagc	agttgcatcg	aattcatcgc	ccttgagtcc	120
cataccgatg	aacccttctt	cgcggttata	tagagttttg	cattggcttc	tgccaccttc	180
gtggcctgaa	tggtgcgaaa	ccgataagtt	gtgtccttcg	cgggaaacgg	gaagcatagt	240
gctcggcaga	tactcgaacc	aacggatggg	gtaagcagta	atctcacgga	tatttttttc	300

agttcggcaa	tatccttttc	gagctgaagc	atcatggcct	cgtcttgggc	aaattgaagc	360
ggaggatccg	tgccatgcgt	atttccaaca	actcttcaga	tcgtcgtagg	taatggggcg	420
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cgatgctgcc	aaatactggt	cccgtctctc	ttccaaacgg	atcgtcagtc	ttgcttcagc	600
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tgctcgtccat	gatgacgcaa	gcattagcga	ctgacttact	tcacagtctg	ttaaaggcata	720
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cgatgactac	gggagtagcc	cgttgtaccc	ttccacgtcg	tctgtatagg	gcgatgtgta	2640
gagcaataac	ccaattgacg	cgctttggca	tccataacaa	tggtacgagt	actatctctt	2700
ggacgatacc	ggctgccatc	gggtaga				2727

(2) INFORMATION FOR SEQ ID NO:1200

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1200

gtcggcatgg	ccgctgatgc	gtattactac	accgcgatac	ttctggatag	ctccttggtta	60.
ccctccttga	tacgatattc	aacagtgatg	gtgtcaccct	gttaaacttg	ggatgttctt	120

tccctgattt	gaactcttcg	ttaacgattt	aataaaatcc	atattgtattg	ctttttggat	180
tagctaaata	ctaaaccaat	atacacaggt	cgcacgttat	ttcctgtcag	agattacgca	240
aagcgctgca	aagtaacaaa	aaagctctca	atcggcaaaa	ctgaacttca	acactcatat	300
tcagaagaaa	ctcgttcgaa	tgaaaccaca	acaactaatg	acctacaact	ttaatttttaa	360
tgcgtcagcc	ctgtataagt	gctgcttatt	gtcaaaggctc	tcatattata	agtacttttg	420
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tattcggttc	ggtctcagcg	ctgtaaagggt	gtaggatcgg	gagccgtgga	gcagatcatt	3120
gccgaacgcg	aagccacggg	ctatataagg	acatcttcga	ctttgtggag	cggatcaatc	3180
tctctcctgc	aatcg					3195

(2) INFORMATION FOR SEQ ID NO:1201

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1201

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gcggtgagcc ctacagcgta gcgagccgag ccgtagagtt ccgctccgga gccgtagagg      60
tggccgagct gagccgtaga gcccggcgca gcgagccac agcgtagctc gaagagccgt      120
agagcgagc tcggtacgct ctacggctag cccgagtcgc tgtaggcggt agctcgaccc      180
cccttcggag tatattcgaa cggctataaa acaatgagga ttcgatctga agaaaaacat      240
gcaattgctg tttgtcagcg tatttcactt ctcagttcaa agatttcagc ttcggaggct      300
ccgacatccg atgagacgtc aaacataaaa aagtaacgca atggatcaag ggacgagtac      360
gttagatgta gccaaaagga ttacaacgta ccttagctcc gatttatgaa aaatatttgt      420
cggtgggggt taagattttac caaagaagggt gaaattgaca gaaccgtagg ctctatgttc      480
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cgaaatcgaa acggttggtat aggatgttga agaggttctc ttggcaaaat ccgttgtagg      900
acgggcattg aagcttttgg gtacatcgaa agcctgtgtc cgtatttacc tctgattaca      960
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gttcgatatg cggaagaacg gctccaatat ttgcctgaga tcattctttc cgacagaggg     1080
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tcttcagac ggtgaccaga tagaaaagga cttcctctcg atggagcgaa cgccttgatt     1200
gtccgtgaag ctgtatgtat tggcaagagc agactacctc cttcgaatac gaagaggtcg     1260
agtttgtcat gccgagattg agggcaactc ttttggccgt atgttgccgt ctctgtcgct     1320
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cgtagctttc tgcaagtgtg gcaggagggt agccggaata tcggaagcag ggatttccac     1800
gcgctatgct tccaaattat tcccagttac cggtattctt cacttcttcc agcgatccga     1860
tggaaggccg gc                                     .                1872

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(2) INFORMATION FOR SEQ ID NO:1202

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1423 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1423

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1202

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ttaatgagtg cccctttgag acatcaacga catgaccggc aacagcactg tgctcctcca      60
atcatgcgct tgctccccgt atatgcacct gtgccacgtg tgccgtctga ttcacattgc     120

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gtccatacga gccgataccg cctccgggtcc aataatccat ccggccacca tcggcacaca 180
gtagcaacca ataatactat gaggagacct ttgcacggca attgggatct ctaacacatt 240
aattcggctt attccggacg gagcatcatc aggcctatat gtgtgttaac acttaaatgc 300
gatcgccctg ccggatggac gatatttggg actcgaatgg gtaatattct tatatttgcg 360
accatatgag aaaatcactc actattaaaa ataaaaacat agaatgaaga aaacgctttt 420
gctcgctgcg gtagttgttt gagcagtttc gtcgtacaag ctcaacagaa gagtgcagac 480
gttgtagaga tcagttcact actattaaag aagtgccaat tacgccggtg aaagatcagc 540
caactcaggt acatgctggt catactctgc attaggattc ctcgaaagga aatcctccgt 600
atgggaaagc ccgaagtggg cttggccgaa atgcactcgt agctcaatca tacaaggaca 660
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cggctatttc atcgcatggg gttcggacgt aagcgagtgg gctttacgcg tgatgggtatc 1200
ggcgatttgg ccgacgtaga aggtacgaa ccaaagggtc ggatcaggat cgttgggtag 1260
gattgagccg tgccagaagc aggcagagat cattcgtacg gttaatagtg ccgattgtcc 1320
tgaatcaacc ccactcaaga gttccgtcag aaaggttacg atgagtatag cccaccgatg 1380
accacggtat ggttatctac ggtatcgcca agaatcagaa tga 1423

```

(2) INFORMATION FOR SEQ ID NO:1203

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 982 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...982

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1203

```

tttaacttcc tacagaaaat taaagatgct attttgtgtg atatcctcat attgacgagc 60
cagagtcttc gtttgataat atctttttga aaaacgaata aacaagttta tcaaggaaat 120
ggctgaaaaat atgccggtga ttatttcacg cataataaca caataggaag ttcaataaag 180
cctgattaca ttcttttact gaaaaaaaga tggaggcaga tggagctcat ttcaagattt 240
atagcgttat ccaactgcta aagaattaag agatgttgat ggaaatacaa ttgaaactac 300
gaaattacgt tgaacagctt agaggctggt gaacaagcat attagaaagg aaagatattt 360
atgaaacact taaaaattga aggacagaat gctatttcac gagaggtgaa aagtggatgg 420
ttgtaacgga gatgaccaag gggattttatt gaatcttgct catgcagctg tagaagaaga 480
ggattttgaa cagatgcata tgatgaagca ttgctcccaa atccagcgca caaaattatt 540
atcagcagat taatagtcaa ttgacggaat tgcataatag aagagcctct ttcaagaaga 600
agtgaggaat atatataaaa aggcataatga taagtatgtg cagagtagtt ttattgcatt 660
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acagtttgtt gtcggcgagg tcctctgaag gattgtaaat acgggtcccg tggattctct 900
caaaactact agtagatcct tccaaaacca cagtggattt cctcaaaacc actagtagat 960
tttctcgaaa ctactagtag tt 982

```

(2) INFORMATION FOR SEQ ID NO:1204

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1204

```

aacgtttaaa tttcgccctt ttgggcgtga acaccatta cctcattggg aatagattca      60
gtttgatcgt atcgagaaaa tcaagagcat tcggattcga ttttccagta tctcctgtat      120
ggtactgagc catttctcca gctccgatct tcctccacgt tgtctccctt gtatttccag      180
tgggcagcaa atccttctct gctatgtcgt ccctccttcg gctacggatt tggacttcta      240
cccaccgcca tccggtccca tgaccgtcag gtggagtgcg tggtatccgt tgctttagga      300
ttgctgacct agtcgcgaat acggtcggga cgattgcgat ataatccgtg atggccgaat      360
agatctccca gcagcgggtt ttgtcgggga tgtgggtgaa gattcgaata tgattcgtac      420
cgcaaaaagg tcgtaaatct ctcgaaagga actcctttct tttccatttt cttccaaatg      480
gaatagacgg tttgaccctc gccttcatct cataggacat gtccataacc gcaaaccgtg      540
tttgagcggg gccgcaaaaat gctcgaaacat ctctaaacga tgctgctcgt gatgcggatt      600
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cgctcttgat ggcgaagaga cccaaagatg tgccaaggga gcatagacat actgtgtctc      720
acctgctatc ttcatgtctt ggccggaagc atggagtcca gtgtgcgcgt attatgcaag      780
cgatggcaat cttgatgagg ataacgcgga tgctatcatt catcgtcagg atagcttgcg      840
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tatacctcac cacatcgtgc gcagagcaca acagatggac gtagatccca agcctatttt      1020
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tctctctcgc tgatcgcccc cttatttctg tctctatata gggattcttt gcactcgcgt      1260
cttgctccat aatcattctc aatctacaat gtggtcatac tatacaaatg taaaaaaaag      1320
gacgtgtatc atcatgcgca aattactgtc tcgtttgcaa tatttggtc agcacgtact      1380
ttgtattcag ccacggtctt agtgcttgt actttacgca tcttacgcac ctaaaagggg      1440
ccatgccaaa taatttgaca cgccccctc ttattgtata tgtgttgatc gaattagatt      1500
gtctctttca gatcagtgtt ctgtttgatg atctccatac cacgctggat ggcttgctcg      1560
ttcatcggat gagtttgtgg tgacgttcgg gcagtgtctt cttcagac      1608

```

(2) INFORMATION FOR SEQ ID NO:1205

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4002 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...4002

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1205

tccgctcggg	accagaaat	atcgaccatc	agttcggaaat	ggagctgcag	cgctccactt	60
tgtccaagat	ataggtcagc	tcttctatcc	ctttcagccc	gtttcggagg	aggcaagagc	120
cgatttgagc	cggtcgagct	tctcccgttg	tcccctttca	tctcgataaa	aggacgcaag	180
cgttcgatag	cctcttgccg	aagcctttgg	tgcgcagctc	gtcgttcacc	ttgtcgaggc	240
cgatctgtcg	agtttgtcta	tcgccaccgt	aatgtccgtc	agcctgtcgg	cttctctacc	300
acttcggcga	taccggagag	gatcttgccg	ttgttcagca	ggaacgagtc	ctgataccca	360
atctgcgaaa	gacttcgctg	atgatctgga	tggttctacc	tcattcatga	gcgaatccga	420
gccgatgacg	tctccatcgc	atggtaaaaac	tcgcgatagc	gacccttctg	cggtctatcg	480
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caccacgata	cgagcaaagg	gaactgtcag	gtcgtatcga	agcccttttc	acaagctttg	600
gctgcaaaac	cgagagaatt	tttctctgcc	agttcctcgc	acagaagtct	gccagcacgt	660
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tatatccacc	gggacgatct	caatcttagc	agcaacatct	ccgaaaagtc	cttcaggcat	3960
atttattctt	aagtaagaga	aggcgattcg	gcgagagtgc	gt		4002

(2) INFORMATION FOR SEQ ID NO:1206

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1206

gtacccgcaa	ttacatcaag	ctattgctgt	gacccatttt	gccatttgac	gtaataaagt	60
tatttttgtc	tcgcaaattg	atttgctatg	aaaggaatat	ccttgccgga	ggatccggca	120
ctcgtctata	tccgataact	cgggggtggag	caaacagctt	ctacccgttt	atgacaagcc	180
gatgatttac	taccgcgtttc	tacgcttatg	cttgccggga	ttcgggatgt	cctgatcatt	240
tccaccgcga	ggacttatcc	atgttccaac	ggctattggg	tgatggccgt	gatccggtgt	300
ccggttggag	tatgcagagc	aaccctcccc	cgatggattg	gcaaggcttt	catcatcgga	360
cgtgaatttg	taggagacga	ttgtgcctgt	ctgtcttagg	agataatatc	ttctacgggc	420
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gaagaaagtc	tttgctctta	tgccatcgac	ggagtcattc	atctggcggc	cgaaagtcac	2640
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cgtgccatcg	atctgatatt	ccatcgggca	agaatggcga	tacctataat	atcgggtggct	3120
ttaacgaatg	gaagaaatcg	atctcatcaa	ggtgatgatc	cgcgtgggtg	atcgtctttt	3180
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gatcgggtga	ccagcggcga	cacctccgat	actacgacga	gatgtactcc	gaacgatagt	3420
gctttttggc	aaattttgtca	tcgtttccga	atcaatcaac	caaacaaatc	acaataaaca	3480
ggaatcaaaa	aatgaagac					3499

(2) INFORMATION FOR SEQ ID NO:1207

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1207

tctcagcgcg	ggattgtttc	aaccgcagga	gcttcctctt	ctactgcaga	gtctccatag	60
ctaccgaagt	ggccgaatca	gccgctgcat	cttgagcgaa	gcctgagtca	tgaagcctac	120
tgacataaag	gccacacatg	caattgtgca	aataactttt	tcacgcgcag	tcttttgttt	180
agattagtac	ttttcgtttc	ttttattttg	ttccttaata	atcttctgcg	cggagagagc	240
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actcgagcac	ctctccttgt	cattccatta	aaaactccct	accgtcaact	tgggtgcggc	360
tatagcctta	tgcatcagcc	tcataaccac	gattatgggt	gggaggattg	ccgatcaata	420
caacgtctta	accggattca	tcgcaaactc	atgttttttt	catcattcca	tccctatttt	480
ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atctttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcggggc	gttttttcag	ccaaaataac	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:1208

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1208

catgctccgt	gccgacacgc	tggatctgat	cgatttttgtt	cttcgtcgct	gcggagcaat	60
ccccgatctt	tcgggtggagt	acaagtccctg	tttatcgga	tcttatgcag	cttccgccgg	120
tagtcaaacc	gcatgaatgg	gagctaagtc	agcaatctat	caaggcggtt	tcttttttca	180
ttccatgggtg	attcgtagca	tccgccggta	ttcctcgaac	tggaaaccat	ataccggcag	240
acagagtagc	ctttacgtcc	ttgctgaaca	acctgcgcca	caatcgctcg	ccggagacga	300
cttgacctac	ctgaaggatc	atgtgaatcc	gactttcgac	agccctgtca	cgaaggctat	360
attacgctga	caacgcataa	ccacaaagcc	gacagatcaa	tcgacgcgct	ttggaagcct	420
tacctgcact	gccccattcc	tccaagcgat	catcaagggc	gattttccgg	aacatctgta	480
tcctttggag	cgacgatgac	gttgaaagaa	ggcgccagag	tgatgttcgt	tcgcaatgaa	540
ctcgccaacc	tagacgctac	tacaacggga	aaatagccgt	agtcactcc	tttctccttc	600
ctcgggtggtc	gttcggactg	acggcggaga	gcttataagg	tagagccaca	cgagtggacc	660
aacgtccgct	actccgtgaa	ccccgaacca	atgccccga	acaggaagta	atcggcagct	720
tccgcctttt	tccgctcgag	ccgcttgggc	tatcacccgtg	cacaagagcc	aaggactgac	780
tttcaacacg	ccgccataga	tctggaaggt	gtcttcgttc	ccggtcaggc	ctagtagccc	840
tgtcacgtat	gacgggccct	gaaggaatga	tactgctctc	cctcccgatc	tcggtgggtt	900
ggaaactccc	caagaactgg	tcgaatatgc	aagacgaagc	ccgacgaaaa	agaactccgg	960
acttctttgc	aggaaaaacag	cttatctatt	ggaagcagca	atccgacgag	gctttcgact	1020
ggcagagctg	ttgaatatat	ggcacaacaa	cagtctcagc	tatcgggagg	agagcgagtg	1080
agcagcaaaa	gccattacag	cgatagagca	gccgaacaat	cggccaaata	gatgcgatca	1140
cggaagtagc	cggacgtttt	cgccggcaac	ttgcgcctt	tgggggcagt	ctccgcttgg	1200
attcgtgtcc	gtcaaagagc	gaatcacaaa	gccgtggact	atttcctgcc	acaactttct	1260
gccatagcag	gcgactttcc	tccacgatcc	aagaagtcgg	aatgctgaaa	aaagccaaac	1320
agttgcgaaa	gaactgtctg	agctacagga	caatcttcac	accgccgtgt	acgcctgctt	1380
cgcttacgag	ccgtttt					1397

(2) INFORMATION FOR SEQ ID NO:1209

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 899 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...899

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1209

ttttgctccg	gataatgatt	aggagtggca	gagtcgcgtc	ctgatatttt	aattcataga	60
taatacgacg	ttgagtaact	aaccaataag	atcgccgat	actctggact	gtcttcattg	120
ccggttgggc	tggtatcggc	atcctgtcct	gtttattgct	accggtatga	tcggctatat	180
gccgcctatc	gagcattgca	gaatcccatt	gacaagtatg	catcgcagct	tatatctgcc	240
gatggaaggt	gttcggttct	tatgcccaca	gcggtgacaa	tcggatatat	accaatacaa	300
cgagatttca	cccgatctga	tcaaggctct	catcgctacg	gagatgtccg	cttccgtaag	360

cattcgggaa	tagacagcaa	aggtctgttc	cgcccggtgt	caaacgcggt	atcctcaatc	420
aaaaaagcgg	tggagggggg	ataccattac	ccagcaactg	gccaaaactcc	tttattcgcc	480
gcgcacggag	ccaaaactcg	acgcctcttc	caaaaaccga	tcgagtgggt	tatcgccgta	540
agctggagcg	tttttatacg	aaggaagaga	tcatcaccat	gtatctcact	acttcgactt	600
cctgtacaat	gccgttgga	tcaagtctgc	ggcttatcct	acttcggtaa	gcagccggct	660
gatttgaaga	tagaggaggc	agccgtctgg	tcggtatgtg	caagaatccg	gcctattata	720
atcccgtttt	gcatgggaga	cagaacgttg	ccgaggacgc	cgcaatatcg	ttctggagca	780
gatgacaagg	ccaaatatat	cactaaagca	gaatgcgatt	ctctccaaaa	gctccggttg	840
tcacatcttt	tcatcggatt	acgcacgcgc	atggcggaagc	tcttatttca	gggagcgctc	899

(2) INFORMATION FOR SEQ ID NO:1210

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1210

cctagtattt	cggcacattc	tgtaaggatc	ggtatatcct	ccgtatagac	cgcttaacag	60
cagggtgccg	ccattaccga	gtcgggatct	gtatgcagca	tatcgtccag	cagaatatta	120
cggttgatgt	ttgcgataat	cagatcgaca	tcggacagtc	ggcaagaaga	gatgcgtcac	180
ctatgcgaac	atcaattccc	gaatatcatt	gagagctgca	ttctcgcccg	tggtgcgtat	240
gcaccgtcgt	ctatgtcgat	agctgtgaca	gaagaggctc	ccaatttgcg	agctagatgg	300
caaggattcc	cgtaccgcaa	cccattgtcca	gaactctcaa	gcccgcgaaat	ccatatcgag	360
aagatagctc	atcatcagcg	aagtggcttc	atgtgtcctg	ttccaaaggc	catttgagga	420
gaaataatca	gctcagcgcg	ttatccggat	cggtcggatg	gaagggtgct	cttacaaggc	480
atgtgtcttc	atccgaatgg	ggcggaagaa	gttcttttcc	cactgttcgt	tccagttgaa	540
tccggttgga	tctcggatga	gtattgccac	agaagccccg	gcagtggaaac	tgctccaata	600
gcgcaggaat	gtcggatgct	atatcgggtg	agacaggata	taagcacgaa	ggcaagtctc	660
gttttgctcg	aaactctcga	atcctattcg	gcaagttcgg	cactaagcag	gtcgtatgcc	720
gtctccaaaag	tcagtcgtcc	ggacgggtgtg	tgagttcgaa	tgcgatgcg	atgtatttca	780
ttgcaagagg	gtagaagtgt	gctgtgtagt	ttgattcgtc	tggttgagata	gggagtccac	840
acacgatggc	caagcctttg	agcatggatg	agaggctgat	cgccaccata	cggattccgg	900
tccgaagccc	ataccgataa	gcagcagagc	cgcggaatcc	gcaggagggtt	ccccccgata	960
ctgataacgg	ccgggaaaac	gtccgtgccc	tcccgtagaa	caggcccttga	gtggctatatt	1020
ccagcatcac	agtagctggg	aatagccact	gatgcgcaga	taaatacctc	ccgacagaag	1080
gcttcttttt	ccggtaccac	gagtcggaag	acttcattac	cgaagaaacg	aaaagcactg	1140
taccacagaat	accgaaaatg	gagcagtaga	gtagggataa	cgataggcag	aaaatatacg	1200
tttgccctga	cgggcagcgt	aattagagcc	acgaaagtag	ccagtgccgt	actgaatcct	1260
tgcgaaagtgt	tccagtgatg	gcttccagtt	gtccgcctgt	tgctcagcgtt	gccactccga	1320
tattcctcct	tgctgcgaag	ccagacggcc	aagcatcata	ttgatgatgg	cgagagggag	1380
ttgagagcag	ctacaggcag	gccgatacgc	aagatgcgac	cctatgtata	ttgtccgggtc	1440
ggacgaagaa	cggaagcaaa	tccaacagct	atcctgccgt	ctgagcctgt	aaaagaatag	1500
aacgaatacg	aatacctgac	gatcagcgtg	gctatggccg	ctccgatcgt	ccccatcccc	1560
aaaccgaaat	cagcaaggga	tccagaatca	tattgagtac	caaccccggtg	ctactgcatt	1620
gaagggtatg	gagctgagtc	cggtctccgtt	gtagataccg	ctgaatcggg	ggctgcaaaag	1680
gtgaaaggca	ggccgcgatgc	cactatgcgc	aggtagtaag	agccaaagcg	tgtacatcgt	1740
cctccaaatg	gtatataccg	aggaaagggtg	tgggaaaagg	aaaaacaaaa	gagcgctgac	1800
ggaggagatc	agtgggacatc	cgaaacggtt	tgcgaaagcgt	atcgctcgtgc	ttcctcgatg	1860
gccccttgcc	gaggctgtgg	cctatcgtca	cctcactgcc	ggctcttattg	atgacgatatt	1920
ggaactggag	agccacgtca	gtaccgccac	aatacctacg	ctgccacgga	cttgctaccc	1980
aaccggccta	accaggccat	atcggtaaac	tataggccat	ctgcacgaag	gaagtaccca	2040

tgatgggcag	agccagtcga	gcagacgtcc	ttttatttcc	ccttctgtga	ggttttgcag	2100
tcggatatac	ccattcagag	cctttgctgc	attccatcct	tgcgctacca	aggtaactcc	2160
gttccgtctc	gtgccacgag	gaggtgaccg	tcggcctctt	ctgtatatgg	ccgatcaggt	2220
ggatgccctc	tattcgctga	atatcatcga	gacggtgaga	ggtacggtaa	acaacaattc	2280
gtagtcttca	cccccgttca	gagggctgtg	gagagattca	tattgaactc	ttccgccatg	2340
gctgccgtct	ggagtcgata	ggcaatttgt	cgtcatatat	acggacgccg	acctttcggc	2400
agcgctatat	ggaggaagtt	cgggacgata	gcccgtccga	atggtccatc	tggcaagtcg	2460
gttgatgccg	gccgacgcaa	ctt				2483

(2) INFORMATION FOR SEQ ID NO:1211

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1211

tgaaagtggg	ttcgcccatg	gagatgttgt	ccgaagctcc	cacccgcgta	aaatgctgtc	60
caccatgccg	atacgtgcac	tttcggcccg	tacgaaaggc	ctatctgtgc	catcagagag	120
ataagggccg	tctgcctgag	cagggcgact	tgccgctcat	attggggccg	gtgacgatga	180
tgacttctgt	gcggtcgtgt	ccaaataaat	atcgttggcg	atataagggt	catcggccgg	240
tagctctgtt	cgatgacggg	gtggcggccc	gctttgatgt	cgatggtaaa	gctccgtcca	300
ctacagggca	gataaatctg	tagcggcgtg	ccgactcggc	aaagagagga	gacaatccag	360
agaagccacc	gcttgactgt	cctgttggag	agtgccacgt	atcgctgcag	ttcggctaca	420
agcaaggcgt	acagctgtcc	tcgagggctg	ctattttctc	ttcggctccg	agtatttttg	480
cttcgtactc	ttcagctctt	ccgtaatata	ccgttcggca	ctgacgagtg	tttgcttgcg	540
atccactcga	ccggtacctt	gtccttgtgc	gtgttgcgga	cttcgataag	tagccgaaca	600
cattgttata	agctactttg	agactgggta	ttcccgctgc	tctatctcct	gctgctgtag	660
cttgatcaga	tagtctttgc	cgctgttgcc	agtgcacgca	gttcgtcgag	cgtggcatcg	720
acgccatgtg	cgatgcgggg	ccgcgaccga	gagcggccgg	agcatcgggc	atcacctcac	780
gcaaatcttg	tcgcgtagtt	ccttgcaca				809

(2) INFORMATION FOR SEQ ID NO:1212

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 716 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...716

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1212

agttgatctc	taccaaatat	cgctatcagc	tggcagcttc	tgtaatgctg	gacagagcaa	60
gaatccgatg	caggcagaga	tcgatgctcc	ctgcgagtga	tcgatttctt	gcgtttcggt	120
gcctactatg	cgggccagat	ctatgccatc	aacccatcag	tgagaaaggc	attctcaatc	180
gggtggagta	ccgttcctcg	aaggtttcgt	tttgccggtt	actcctttca	atttcaccag	240
tattgttcca	acctgaatct	ggcacccggc	atgatgggga	atactactat	ctggagcctt	300
ccactacagc	tcttcatagc	aactacctcc	ttatgaaaat	cttcaagagg	ccggtttgcc	360
cgatgggtg	gtcaatttcc	ttcccggaca	ggtagcttga	tcggtcgggt	agccacggcg	420
aacgaacact	tggccgggtt	cattttaccg	gttctactgc	tacgttcaac	acgctgtgga	480
agagcatcgc	ggcaatatag	atcgctatcg	tggctatccc	cgtatagtgg	gcgaaacgga	540
ggaaagaact	tcgtgatggg	tcattccctc	gctgaagcat	gcgaagtgc	acggctcttg	600
tgcgcggagc	tttcgagtat	cagggacaaa	agtgttcgct	gcaagtcgcg	catatatccc	660
tcgttctttg	tggcccagcg	tgaaagagtg	atgggcgata	tgctcgacag	tatcaa	716

(2) INFORMATION FOR SEQ ID NO:1213

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2134 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2134

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1213

ggcaaggcca	ccactttttc	ctgcgctcatg	atgctcgctt	tcctcttcac	ggagagccta	60
tgctgaactt	cttcggcggtg	gacgtctctt	ccttcgggctg	gcaggggcta	tcgtcctctt	120
cgtgatggcc	gtggagatga	tattcgggtg	cagatattca	aggacgacgg	gcctgcgggc	180
agtgccacca	tcgtacgctg	gtattccctc	tctttgcagg	ggcagcaacc	tttaccacca	240
tcctccgctg	cgtgccgacg	gtatagcgat	gaccaacatt	gccattgcc	tcctatcaac	300
gtggctatga	tctacctcat	gctccgtttc	gtaaacacgc	tgggcgtttc	ttcggtaagg	360
gcggtatata	cattccctcg	aagttctctg	gttcattctg	cctgccatct	cgggtgaagt	420
cttcaccggc	aatatcgtea	aatcatcgag	acgatgaacg	aagccttgca	gaagtaagcg	480
atgctggact	tgctgccata	gatttcgaga	cggccaatgc	cgagcggacg	agcgtctgcg	540
cgtgggcata	atcggtgtac	gaggtggcca	gatcgtagac	cgttattaag	cctgattcgt	600
cccgaaccgg	actattacaa	ttaccacaat	acacgcgaca	cggactgacc	gctgccgaca	660
ccgagtcggc	acggatcttt	ccggactgtg	ggccgaagtg	gagcctctga	tcgcagggtg	720
tcgcgtcgtg	gcacaacaaa	gccgttcgac	gaagggtgcc	tcaaggcggt	attcaggatg	780
taccaatgga	ctaccccgac	taccattctt	tctgcacgct	ccaggcagca	cgcgccaaact	840
gcgacacctc	agcgatcctc	gtctgcccac	cgtagcccaa	tgtgtggata	cacattggca	900
caacaccacc	aagccctggc	agatgcagaa	gctgtgccgc	catcgccctg	aagctcttgt	960
agaaaaactg	ccatgggaaa	ttcatgcccc	tctttatcca	ccgggtgtta	caagcgtttc	1020
cataatataa	atcgtttaate	ttatacaggt	cggaataaaga	gttcgatcgt	ctgaatatatt	1080
ttctaacttt	ggcactctct	caattacatt	tatcatcggg	aacctgatc	gggacataga	1140
agcaaagaaa	accaccttcg	cggacgactg	cataccagtg	gttctttgcy	ctttttccgt	1200
ttgaaatcct	ctcaaatect	tactatgacg	atagccccgt	agcagctgtc	ggaatgccga	1260
ataaaggcat	tttaccctcc	cctattttaca	tttgtaaaag	gctgacaaac	agcctgttac	1320
aactctgcaa	ggcctccatc	gggaagtctc	gcagcgtatc	ggttttgccc	accatatctc	1380
ttttcggagc	atcatcggga	agacgtttgt	ccgcacctga	aaaaaccgcc	gaagaccctgc	1440
aaatatcaag	tctccgcact	ttatacttta	aagcctccac	cctttatagt	ataacccttc	1500
agggttttat	agtattaccc	cccacgcttc	gtatcgggag	gcattttcgcc	cttcaaattct	1560
caagccttcg	gccttcgtgg	tacctcccg	gagattttcc	ccgtggttgc	acatcgtagt	1620

gctcaagaaa	aagaacaacg	cgagaataat	caccataatt	cacttaccaa	acaaaaaaaa	1680
aacgaaatgc	tgaccctgtc	agtcaagagc	cgtctatgaa	gatcgggcaa	gcacaaggac	1740
ta;accatgt	actatgccca	agtgacaaac	cccagagtaat	cgagtacgag	gacgtcatca	1800
aagacattgc	cgaatgtcct	ccctgaccac	aggcgatgtg	cgcaacgcca	tcgaccgact	1860
cgctactacc	tccagcgcca	actcaccgag	ggcaataccg	tcagactcgg	aagatcggca	1920
ccttcgcgct	gtccgttccct	tccaagtatg	tggaaacgga	aaagagggtga	atgcctccat	1980
cctcaaaaag	cccagaatcc	gtttctatac	aataacacgc	tctcagccgt	agctgacaat	2040
atccgtttgg	ctgtctacgc	aacggtcaga	aagtagatga	caccacctct	ccctccactc	2100
cgagcgaggc	ggcggcgaac	aaaccggcgg	aagc			2134

(2) INFORMATION FOR SEQ ID NO:1214

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1287 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1287

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1214

agggggataa	ggaagatgat	gcaccagagg	tttacaacct	tgggatgtat	tcgactatac	60
atcggggtttg	cctgttatcc	ccggctcttc	tatcaaagga	tgctacgctc	tgccatcgaa	120
gagtgggact	tccttgacga	ttatgagtca	acaatggagt	tacacgtgaa	gaaattattg	180
agaaagtatt	tgtaggaaaag	aatattccat	ttatgacaga	gacattttcc	tcgatgccat	240
tcctaaagag	tagataaacac	tctctttgga	gaggactata	tcacgcacca	tcctatcctc	300
tgcaaaaccc	taatcctgta	cgttttttga	gggttgaacc	agggtaacct	atcagtttcg	360
ctttatcctg	aaagatcatg	gagagaaact	aaggtagact	ttaggacaaa	gctcttcaaa	420
gctattatct	gcactttttg	ttcggggcca	agaccaatgt	cggctacggg	caattttag	480
aaccttagaa	tagaattacg	caggttacct	ctccattggg	tcgtttttcc	tcagcaaagg	540
ttttgtatgc	cactctccac	agattcgttg	ccgatctttt	tatcggactc	accgcctacc	600
attttagcgt	tcgttttcaga	gccgaacgtg	ctatcgcttc	gaacgcaaat	ggtatttcat	660
gcctcggttt	gcattgggca	atgccccaaa	aatagtgaac	aatacgccct	cctctatggg	720
cagatattca	agccaaagag	gaagacacgg	acgaaagcaa	gggaccgggc	aacacctcgc	780
gcctatcatt	cgagccgaca	aaccctctcg	gaagtctctg	gaggcaggcg	aagcatggat	840
ctgtatatta	ccgtcgtaac	gagagatcct	ctgctggctg	gaacttcctc	tctttccttc	900
cggaatggca	agcgtacaac	ttctttcggg	aaatgatctc	acatacgact	cctaccgctt	960
gtacaattccc	acgacacaga	atacgagtcc	gggctaaggg	tagaggatgc	ggcacttacg	1020
gtagacttct	ttctcggcaa	gcaatccggt	ggggtgaaat	cctctctgta	cgctttcttc	1080
tccggccagt	atcaaggtag	atcaaatact	gtccgccgaa	ataccctctc	gcgtctcatg	1140
aatagactct	cacggcgtct	gtatgagcta	tatacgaata	cctgagcagg	ggagagacat	1200
ctgtggagcg	atatattttc	cccgacatga	tgggctgatt	tactcccaga	taagtatgcc	1260
acgcaaggcg	actacaagga	aaacaga				1287

(2) INFORMATION FOR SEQ ID NO:1215

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2384 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1215

```

ccttgctcga tgtagcggta gtacatatcg gtgaaagtct ggcaagtgcc ggattttccc      60
gctccttttc ttcttcggtc tttctcttgc gaattatacc atgggtgctg atttttggat      120
tatgtggcgt ttagaggccg atttagacat aatatcctgc cggagggcgt ccaccaagct      180
gctggctcct atgcggaata tgccggcgta agccattctt tgcccaaaag cgtttcgacg      240
agacatagta tttcacagca tcttcagttg tgcgaatgcc tccggacagt ttgaaccacg      300
tacttcgcca aaaagtccgt agtactgttt cagcaccttg cactcgtata ggctgcttca      360
aggctcgctc cggggtagcc tttgcctgtg gagtctttac aaaatgtgca ccgcagaaaa      420
gggagagaat cgtagcgcgga cgatattctc cgggtgtttc aatgcgcctg tctccagtat      480
cactttgacg tagctccctt tgctgctgct atttgctctt cgatttccgt ggccgctgct      540
catagtcgcc acttaggaac ttacccatat tgagtactat gtctatttat ctgctccatc      600
gcttacggcc agtgccgttt cggccaactt aacttcgtaa agctctgtga agcggggaaa      660
cagccactga cgctggccac tttcactttt cggctgtgag cgtttctctc acggtggaga      720
cgaagttggg gtatagcaga tcgccgctac ggatggaatc gtgggatctg tgtcctcgaa      780
gtcatgacgc tctcggtaaa ctttgtgatg gactcctccg aatccgtggc gttaggctgg      840
tcagatcgat gacgccatgc aggaatttct tcgtttccgg aggtcgaatc gtgaatagtg      900
atcccgtatt atttgatcgg ttttcagtaa attctctctt ctgactcggc cggatcgaac      960
tgagcgaagg ccatttctga ttatttgcgt ccattgttgt gtagtttctg attttgttga     1020
tgtctttctt gtctctaacg gttttcttct cgatattctt atggaatgcg gtggtcagtc     1080
cacaccggtt tgggttgcca ggcagagcag aaccacaga acatcagcat ttcgtcggcc     1140
aaatctttgc tcttgctcgc tttccttttc actttgtctc cgtaccgtcg tgcgatgata     1200
cgtgctactt ctccacctc ttcggcaagg atggccatgt tggtagctc attgaagtat     1260
ctgataccca gtgtttaatc cattggtcga cactcttttg tgccctctctt agtgtgatgt     1320
cggcatggct ctactccttg ttgtgggtgt caatcaatat ggttacgggc cctcgttcac     1380
caatgcgacc tgcagtctcg ctccgaatac gccttgcctg aagcttttcc cagttttgcg     1440
gacaagctgt tgcagaaact ctcgtagaga ggtatggtat ctcaggacgg gaagctttta     1500
tgtagctggg tctgttccct tccgggtcga tcccatgagt gtaaatggc ttacgaccaa     1560
ggcttctcat tgatgtcttt gacggaaagg ttcatacccc cttcgctgct atcgaagtac     1620
gcaggttgga gatcttggaa gttaatagtt cgatgtcgtc ctctcctctc ggtcttctat     1680
gcctacgaga atcagcactc cctgacctat acggcgtgta atgctcctct gatgctgacg     1740
gatgcctccg ttactctttg tattctactc tcactcgttt ttatttcttt ctgagtcctt     1800
cgtataatag tttgcttttg tccggccgat aagagcacta agctcttctt cttctgcgga     1860
gctattcgct ttacgctttt gaaatggcgg agcagatctt cttttgtttt ctaccgatgc     1920
ctttgatatt gtccagttcg ctctgaattt gtttcttact cgtacatcgc ggtggaaccc     1980
gateccgaag cgggtgtgctt cgtcgcgtag tgttgatga ccttgagcgt ttcgcttttc     2040
ttgtccaaaa tcagcggacg gggctccttcg ggaaaaagat ttctccaga cgttcggcca     2100
atcctatatg ggtatcttgc cgatgagccc cagtttatct aatgtttcgt acgctggcta     2160
agctgtcctt tccctccatc tacgacgac aggtcgggta ggggtagttc tcttcggtca     2220
gacgggtgta atgccgactg atgatttctc tcatgaggcg aagtcgttcg gcccttcgac     2280
tgttttcacg tgaactttc ggtatccttt ttgctcgggt tccccatttt gaaaacaacg     2340
caggctgcca ccgactcgta ccctgtatat tcgagttgtc gaag                      2384

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(2) INFORMATION FOR SEQ ID NO:1216

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2290 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2290

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1216

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ctcgggtaccc gcccgaggag cgcaaaactg ctgatcagcg tagcgggcttg acgatattac      60
gggtcagacc gacttccttg ggggtaagaa attcgggtgta ataaggaaag tggtcaggaa      120
gccgatgaaa gcacctgcat agctgacagg gtccctttga tactctggcg ttcgacaatc      180
cccatagctc gtcccgcgga aattacaagg cctgagcaag cagcgtggcc acaagcatat      240
agatctcatc ccgatgaggt cgttcgtaat ggtgataaag gggccgggtg ctatgccggg      300
tctatcttca atcgatccag cagcatcggt accatggtgc cgatatgctg gcgaacaata      360
cgacggaaaa gaggtgatg gagacggcag actgacgagg acgtcaccga ggaaaaagta      420
gttgaacagg aagacgacaa gctgatgata gaggcattga tcagggctac gacgacttcc      480
ttggctatga actccagagt ttggcctgct tcagactatt gtttgccagc ccctgtaccc      540
gatggccgaa gactggatgc ccacattgcc gctgtgccc ccaatgaggg aatgaagagg      600
gccactcttg gattggcggc aaagagggaa tcgaatctcc caagaggatg gagttggcca      660
atccctcccg catgccgatg agaagcacgg caggcgtgct gcggtctgca tatagacctt      720
atccgatgct tctattcttg cgaaataccc gatgcaagct gatagtcgcg ctctgtctgt      780
tcgcaatttc gtcgatcaca tcgtcgatag tgatccggcc taccaaacga ccgtactgtc      840
cactaccggc agagccacga ggtcgtactt ctctatcttc tcgcgacttc ttcgatcggg      900
tcattgtctt tgacggaaaat aggtcggtc tcatcacata cttgatcttg gaagcggaag      960
ggctggtgat cagtttcttc gcggcagcac tcctttgagc cgttcttcat cgtcgatgac      1020
atagacgtat atatctcgtc cacatcctct gectgcatac gcatctcttc gatacactgg      1080
gcatactcca gttctcattg acgattatca tctcggtaac catgaggtac cggctgtatc      1140
gtcttcgtac ttgagcagat cgataatatc tccggctgct ctatatcggt cacctgactg      1200
agaatctcgt cttgctgggtc ttcgtcagct cacgaatcag ctcgcccgca tcgtcggctc      1260
ccatgttgcc gacaattttc cggcgatggt ctcggaagga atcctttcga ggaccttggt      1320
tcgtcatctt catccagctc caagagtacg agaccggcct tttctccatc gacaggaggt      1380
agaggtagac agcctcgctc agatccagct cgtcatagag accgcaatat cctcgggggtg      1440
gagcttgctc atcaggtcga gagcatctgc tcgcgctttt ggtcgatgat ctcgcaaga      1500
ttgtgaagat attctttcgg aagtccataa gaattcggtt atcagggggg atgaaaatgc      1560
tattgctgaa caggagtgtg agtgcgatga aatcatccgg agacaactgc tccggtcctt      1620
cgagaaaacg ggttcgtcga aacgatcaaa accggccggc aagatacgcg aagagagttc      1680
ctaagcgttt tccgacgctg tccgaaagct gttttaccac tgttttcaag gctttctcgc      1740
tacatggaag ttccttgagg tcatgcgtgt cagacgtatt acaccgctct g'actttggg      1800
cgggggggtcg aaacggaagc gtctacgggtg aagaggtatt cgatattgta ocaaagctgc      1860
aaaacacgct caatatgccg taatcttttt tcccgggagg cgatgcaagt ccatagccac      1920
ttcgcgctgc agcatccccg aacaacaggg aatctgctcg gaacgtccaa caggcggaag      1980
aaaatctggc tggagatatt gtagggatat tgcctatcag gcagtattgt cgctctccgg      2040
ggaacagctc cgacaaagat agtgacgaaa atcgccctct atgatccgat cggaaagtgc      2100
gggaaacctt ctgcgaaata gctgacggac tcaccgtcga tctctatgac gcgaactcat      2160
gcccttgctg aagtaagaac tgcgtaagca ctccatacc cggccgatct ccagtacagg      2220
caatgcttta tgctcgaaa ggggtgcggc tattgctctg caatactcag atcgcaagg      2280
aagtggtgcc

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(2) INFORMATION FOR SEQ ID NO:1217

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1059 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1217

gctcaagacc	cctcgaatgg	catattcggg	cagcttggtg	ttgtccacat	gtccacatac	60
aggctgctga	tagcatcac	agccgtttcc	agcttacgag	ggcctctttc	atactactac	120
tgagtttcg	tgcagatgcc	gaacagccag	taggagcagg	agtataatcg	atttgcttgc	180
tttattcatt	ttttacaaat	ctttcttatt	tcagcgtcca	aagatagcac	accttagcac	240
aaacgaaagt	ctatgaccgc	gagcttcgc	ttgggtattta	tacacctcaa	tacactaatt	300
ccgaaacggc	aatccatttc	tcgtctattc	attatatttt	tgtactgttt	tacattttga	360
ggagacaatc	aacacaatta	aataactaaa	aagaaagagt	atgaaaagaa	tgctgctgct	420
tctcgttgta	ttattatatg	gattgcaggc	cgattggctg	cacaagacgt	tatcagacca	480
tggtcattgc	ggtcggagcg	ggatactccg	atacggagaa	catcccggga	ggattcacca	540
tggtttctat	ttgggaaagc	gtatggggag	ctttctggaa	gtggggcttc	catgtacaac	600
tccacacgtc	aaacagccaa	caatgcagac	tcctttgatc	gaacgaagga	gacggatctt	660
ttcaggtaaa	tatgtcttct	ccgaatagaa	gtgggtcattc	ttcgatgcag	gcagtgccaa	720
ctgctatatg	atcgtgtcgg	agtcaatcct	ctccatctgt	tttggcagaa	tagccggcac	780
aattgtttct	ggcagtacaa	gccggcctgt	ccaataagca	caatattcat	ttctctatgg	840
agacaaggga	gccaaagtca	gtatctacac	caattcgaat	actacatcgg	ttacggagca	900
cgtgtagcct	acgaatatca	aattcataaa	acgtgggggc	gggtgccgct	gtaatgtacg	960
accacggcaa	taagatgctt	cggccatggc	cacgctctcc	actcattttt	agttgccaaa	1020
gctcaatcga	catcgtctcg	aaatccgagc	ttttcgtaa			1059

(2) INFORMATION FOR SEQ ID NO:1218

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 779 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...779

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1218

caagtaaacg	aaacggctcg	gatcgagaac	ctgatttccg	tgcccttacac	acaggatcgg	60
aacttgcatc	caacctcaat	tctcacatca	aggccaatcg	atctccctct	tcgaggcccg	120
aaccgtgtcg	tccatcacac	aacaagaggt	atatcccggtg	tggaagtgc	ttccggagaa	180
gtcttcacgg	ctccggctct	atcatggcta	cgggtgcttc	atggcgcaag	ctcgggtgac	240
ccggcagaaa	gaatatacgg	gtaatgggtg	agcctactgc	gctcactgcg	atggcctttc	300
ttcaaaggca	agcgtgtggc	cgtggctcgg	ggaggcaact	ccgtctggaa	gctgccatcg	360
atttggccgg	tatatgcgag	catgtcactg	tatagagttt	ctggatgtgc	tcagggtcga	420
tgaggtgctt	caaaagaaa	ccgtgaaaag	gncaatatcg	acatccctct	cagtactgct	480
accaaagaaa	catgggcaac	ggacagaaa	tggaagggaat	actgcttacc	gatcgcaacc	540
gggagaggaa	aagcaaatcg	cactcagtgg	cgtatttcgta	cagatcggct	tgccgccaat	600
acatcccttg	tgaagattt	ggtggaaaca	aacagccagg	cgaagtactc	atcgatactt	660
catgccgtac	caatacgccc	ggcataatgc	tgcaggtgac	tgtaccactg	tgccctacaa	720
acagatagtc	attgcatggg	cgaaggagcc	aaagctgctc	tttctgctt	tcgaggatc	779

(2) INFORMATION FOR SEQ ID NO:1219

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 409 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1219

aacatttacc tcaactgcaa cagtggattg ttctgtctat atatggagga tactaatatt	60
tctcacaaca ttagaaattg caaaaactta taacctcgaa tactaaccct taaaagagta	120
aaaagatgaa aaagtattcg ttacagatat tggactattt ttcgctgctg ctgttctgat	180
ggtattttctg acagggggcga aaaccggttt gacttggagg acattccgca agaagcggaa	240
atccgacacg ctccggccata ggcgagacgg ataacggcag agaatacctg ggcctaattt	300
ttacctgaca agttcggatg aagtggtttc ggacagtcga tccgagcaga aaggaaaatg	360
ctggcccgtg catttaacat tcagaccggt cttgggagca attgcttag	409

(2) INFORMATION FOR SEQ ID NO:1220

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 862 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...862

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1220

ttggttccgt ttttcccgaa aagcggtttg agtttttccc gaaaaatggt cgtaattttg	60
tttcttctat tcttctctct ttccggacggt ttccgaggaga gaggaagatc tttactcctt	120
gctttggatt ctatcgatct cgattatgga ttttcgttct ttacatttgt attctatatc	180
aataagaaat gctatcttgc ggtcgatatt cctatgtatg gtcataaaag tgacccgaat	240
atgtggtcca ccatacgggg ctaacaagtt tagtagaaag aaagtaatgt acgtatcgta	300
gacattcagg gacagcagat gaaggtagaa caaggccgtc ggcgttcgtg catcacatca	360
aagatgtaga gagtggtgca agcgtagaat tcacaagggt ctccctcgtcg ataataatgg	420
tgctatcacc gtgggttctc cctggtagaa ggcgctaagg tggtatgtga agtattgact	480
cctcttgtga aggggataag gtgctgatct tccacaagaa gagaagaaaa ggataccgca	540
gctgaatggc catcgccagc agtttacgga aattctgggtg aaagaagtgt tgcataatca	600
aatcccaaaa cagaaacaca atcatggcac ataaaaaggt gtaggtagtt ccaagaacgg	660
tcgtgaatcg gaaagcaaac gtcttgctg aaagtttatg gtggagaaat ggctaaggcc	720
ggcaacatat tggttgtcag cgtggcaccg ttcaccaccc ggtgaaaacg taggtatcgg	780
taggatcata ctttgtatgc actgaagtcg gcgtggtagt attactcgca gaaacgaccg	840
tcatacgttc gatcagaccg at	862

(2) INFORMATION FOR SEQ ID NO:1221

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 759 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...759
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1221

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tttgatttga ttcataaaaa ttagtcagat ttgtcatgca aatcttatga acaattcaat      60
agcttggttt tcttccttag ttccaaatct attaggataa gaaagcatag taatttagaa      120
tcatgtaggt cttttggaac tacaatttct tttttatata tgtactcatt ctttattatt      180
ttacataaat tgctttacaa aaagcaccgc atattctcac cgggtgttaa ctacaaaatt      240
ctcaatgtag atagcataaa atctattcat aatggagttt ttgtggtaaa ggtaggaatt      300
acaacttatt tctttgggtt tccttttctt tcttttcaga gaaatgagta ccatgttgaa      360
ctaactgtat gttaaaagct agtgaagcct aaatacatga gtttgggata ggaaaagtct      420
tataaaagtt agtaatcaca gaataatttg catgcttgat gagtttagca agaattttga      480
tgcggaagt aacatcatct gcttcctacc ggtttcccaa aggcctgcag acgtcgtgaa      540
tctcacttag tgacagttag attatgacta ttttgccggt gtttcattcg gaacctttgc      600
taatttcaaa catgattatt tgcatttcat caaagtgatt tgcactcga gttcccttcg      660
gctgtgtcgt acaatcgctt tgtggacttg aaagccgctg gttctttcaa actcatgctc      720
tttcttaaac tctatccctt tgggaaaaat gtaccgggc

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(2) INFORMATION FOR SEQ ID NO:1222

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 554 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...554
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1222

```

cggtgtgtg gcaagagcac gtgatgctta tgctaaagga gatacaattt ttttaacagc      60
aagaattaca cactggggaa tgaacgtaat cttggggagt agtaaaaaag atgcctggca      120
tggaaggttt gaccagacag gaaatattca tatcaaggaa agaaaattgg aaaggtcttg      180
gttgacgggc aggatattta tcctcttctt ccggtgttgc catgaatacg cttcctcctg      240
attttccaat tcgatagaat tgctttcgaa ttatacggat ggtgatattg cccagctttc      300
aaggcataag aacaattagc cctcaatctg aagtccaata aaaagttgct ttaagcgggt      360
cttttgaagg cggangcggc ctgaaagaca aattatcagc aaagcatctt tgattacagt      420

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cttaccaaaa	atatctgcc	gaccatcatt	aacgccaata	atacaggtga	ggctgttttt	480
tcgattcaag	ttatatgtcg	aatatcatag	actttgaatc	gatccgaagt	ggagcttcac	540
gcagacatct	ttaa					554

(2) INFORMATION FOR SEQ ID NO:1223

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1223

tgctttcgat	acagccccc	gcaaacgtgc	gtaaacctca	tgccggtcac	gccgtgtagc	60
gaagcatccg	tgatgccgtg	caaagctgca	gcctcgggga	taccgggttcg	tcggtagaca	120
gccggcaaac	gacttctctt	atacatcgaa	acgaaagtcc	agcagctgcc	aaccaaccga	180
tacgggtgcc	ggtgcactac	tcggaaata	aactgcgttt	catcggcagg	caatccggtc	240
gtctcgtatc	gataacgaga	aaacaaggca	ggctatccac	agcggcaggc	acagcaccaa	300
caaagacgag	gcacggcat	cgataatccc	cttgcgacgg	aatgatccga	agagccttct	360
ggcggcaggt	tgctggcctg	ccatggatct	ttggtttcca	taacgtcata	aaagccatgc	420
ctgcaatcag	cacaagcagg	gcacagccat	ccacagcgtc	atcgagtaat	cttttttctc	480
ttatcgaaga	aaactttcgg	tcgcgtgcga	tggtttcctt	gaccgatccg	gtcggcacia	540
ttgccaatcg	cagacagaag	gcactttctac	cctaccctgt	cgccgcacta	gcgaatcaga	600
gcttgccgaa	tatccacggc	tgtagagttc	ttgagacaga	atgcaattct	tcgggtgcaa	660
taccggctcc	ttccgtcctc	agtcgcctcc	accattggct	cgataagaat	tgaggggccac	720
cgtgtatata	ctatcagtag	aaaggycttg	tatacccttt	ggccggacat	cttgtccctc	780
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tgatggagag	aggagctgca	aatgatatat	ccgcgcggga	ctcgctcgca	tcacatgatg	1140
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caacaaaaca	ggtttttcct	tttggtatc	aaacggtaac	cagtacttgg	ccgattcatt	1620
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gctaccattt	tgtatagacg	gcattggccg	tctcgatgtc	gtgattgccc	ggtatggcgg	1860
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ttataatagt	aggccgtagg	atcgccctgc	aatacgtcgc	accatcgaag	agcagcaact	1980
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cggctctaaa	gctttgaatc	agtgggggaat	acattcccgt	gaagatccgt	agtgtggata	2100
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caggacggac	agcaaacccga	aaagtctctt	cttcataacc	tgcaactgta	gtatttcctaa	2220
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accatccgca	tcctctgcgc	aaaaatcatg	ccctcggact	cgataacctt	cagcttgccg	2340
ggcggcaaat	tgcgataaag	catacctgct	tgccctaccg	ctcttcggga	gc	2392

(2) INFORMATION FOR SEQ ID NO:1224

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 971 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...971

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1224

```

ggaggctttt tcgttgtagt agggatttat ctgttgttct ttctgatcga tacctttgtc      60
ggcatctgat cagaagatat atcctcggac ggctggccga gaggtactgg aaattgtagc      120
ccgccatcaa agaaaaaaaaag aagaggagaa gggccgacaa ataagtagat ctcaaaatga      180
ttgtcgcgca aaccgaaata gaaatagata tgcgagcata ttacgaactg aagcgtcgctc      240
gagaccatgc gataagggaag cagaacgata ccagaaggac atctttcgct gtttgatcat      300
gtacgcaaca attatggcga catgattttc gaagaagttg agaccatctg atctatcctg      360
gcagccttgg caataagata cttcgcttcc tctcggcaag aagcagatct cttcatccaa      420
gctaatagact ccgacaggcc gccgactctc catctgatcg agcagcttac cgacttcggc      480
cgtcctttgc gatcagtgcc ttgcttggct ttgttaagcg tagcatcggt cgccgtttcg      540
caggcgtcga taatttcccc tattctgtct ttccgggtaa ggaacattta tgtcagcggc      600
tgacaaagcg atataattgt tgtctgcctg aaacaatctc catgaacaca aaagaatatg      660
tgctggactt tatcaaccgc acgaacgtaa ccttttccct accggcaatg cgggcacagg      720
caaaacgacc ctgctcgcca tatagtccaa cacacattca aaaactgcat agtagccgct      780
cccacggaat agcagcggtg aatgccggtg gggtgacgct gcattcgctt ttaagcttcc      840
gccgggaaca ttcattccgt acgggctatc tctcgaaagt gcacgggcgt aaacttcctc      900
acgccaactt ctttttggaa acagacacgt agcatgcttc gaagcgcaaa ttgcttcgaa      960
acatggagnt g                                     971

```

(2) INFORMATION FOR SEQ ID NO:1225

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1225

```

atcttctata cttgatatta ttgattacct cctattgtca gataatcccc tatagttgag      60

```

aatattatta	atgaaaatgt	tgaattctat	ggaatgaaat	atttcttgaa	gaaagaagct	120
acatccta	gaggaaggca	cctcattagg	acaaggtag	caagatgtgt	attggaagga	180
gcaagaggaa	tatccttgcc	atacatag	actcactctg	tgggtgagat	gagaacaatt	240
ctgacaggat	gttttatgtt	cctcagcatg	aaactaaagt	tggtaatcgg	aagtcaatat	300
gaccttcagg	cattttttgc	catttaatta	tctaacagag	gatttatttc	atcagcaaac	360
acttattttg	atacggcatt	ttttattaat	cgagttatga	tggtttccct	gattatgcat	420
t						421

(2) INFORMATION FOR SEQ ID NO:1226

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1226

ggcgcaagat	ggctgtacgt	ccgcgaagat	cgctgtctga	cagccgttca	tttcgccata	60
tgcaactttg	attttgtcca	cgaaagggtt	tacctcttca	agtcacgctg	cgattttgtg	120
ccgaaaagct	tcgacatgaa	ttcgttgatc	ccatttatct	attgtatttt	ttgtagctgt	180
tatgatattg	gcggagacc	gcgtaagagc	gaaagactcc	ttctctctct	tcccgaatag	240
tatgtcagag	agccacttcg	ggtaatggca	aggcacgagc	ctctgtcgga	ggactatgcg	300
gaggatatac	gccaaagggtg	gagctatctc	tgtcgaagaa	atattcgctg	cactttttgt	360
ccttttatgc	cggttaccac	caagataaaa	gggtgctac	agcattatag	cgtattttgt	420
tgtgatccga	attcgaggat	actcctcttc	tcttctctac	catcctcctt	gtaattgcaa	480
acatacatcc	cagattgccc	caatcggaac	gaacgaacaa	aacgattcgc	ttcttcgtta	540
ttgtcccga	acctatttcg	tgcgcgggca	atgcaagtcg	tacaccgcca	tctgtcgggc	600
aaattctgcc	acttctgatt	gaagccgacg	catatcgctt	gtttcttttc	tgccagtttt	660
ttgtccagaa	tcaactgacc	atctgcta	ccaacaccca	ttgtccctgt	ccgtgcagag	720
ccatcaaata	catatgatca	aagctttgca	tcgctttgga	ctgaagtagc	gatgacgctt	780
atggggaata	cgctttcctc	cgggatcgaa	ttattgaagt	ggcctgttcc	actagggcta	840
ttatgcagtt	tgccaagcca	atctttttgt	ccaaagctgt	gacaggcgag	caagttgagc	900
atccaagcga	cggtacgtgt	cgaccatctc	gcctgatgct	cactctgatg	tttggcaggg	960
tatcttctcg	cataataagt	agcgatagca	gattgggctg	tttggcaagt	tccaatcctc	1020
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gtcggccgag	gagttgaact	tatcgtgtac	caagggaaat	ctttgtagta	ggtagtcgta	1260
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cgtagtctcat	cgccgatagt	gccggaagtg	agcttgagag	ggacagatgt	tcagatgtat	1440
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tacagtactg	cctgtaatat	gtgacgatta	ggatagggtg	cggtatata	acctgcaata	1560
gccgatgctc	gtctacccca	tcgaatccga	agtctacgtt	gctaaaaaca	agtccatctg	1620
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gctaatagat	agagtcatat	acatagcata	tatccttgcg	acgaacatcc	caaacactac	2160

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caggaataac	tgtcctccgg	attggcatag	gtatctgttt	tcgccccgag	agccagatcg	2400
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cgaacatgcc	ataattgtaa	gcaatatccg	tccttgtagc	ggattgagaa	tcctgaatgc	2820
gacatgaccg	tagcgagtgt	atccgcttct	gtagaaggag	aagagatcaa	gaggctcatc	2880
tgcagacctt	gtctttcgtc	tcctgtgtaa	ctgtctgtgc	attggccaga	agtcgcgtgg	2940
caataagaca	atcaagatgg	cggagaatag	tccggccgat	actttcagtt	gcttagatat	3000
ttttttgcca	ttgtgaatta	ccaatatag	agtactttta	ttatttttc		3048

(2) INFORMATION FOR SEQ ID NO:1227

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1227

acaagcatga	ggctcagcaa	ccccggcaac	tggacattaa	ttcactcaat	aatcgacagc	60
tatggactat	atcaatgcaa	taggcccggc	taaggctgtg	tagctcgtgt	ttatctgagc	120
gaaggctccg	gcaagatcgt	gatcaacagc	gcgaaatcga	acagtatttc	ccgtcttcaa	180
tcttgacagta	tatcgtaagc	agccactttc	caagctcgtat	gttgctgcga	aatacgatat	240
caagacaatc	tgcgtggagg	tggtttcaaa	ggtcagagcg	aggctgctcg	cttgctatcg	300
cccgtgcact	ggtcgaagatc	aatccggagc	acaaaccgc	tttcgttcag	aaggcttcat	360
cactcgcgat	cctcgcgtgg	tagaacgtaa	gaaccgggac	gtcccaaagc	tcgcaagaga	420
ttccaattca	gtaagcgtta	agtccttaga	ggatatttct	cgcgtttagt	atctaaatcc	480
atcggattgc	ttcgggggta	attcatttct	tttcgagctc	gctctaccgg	tttggaattga	540
aacagtaatc	attacaaaga	acgtaaacga	aaatgtcaag	aatttctttg	atcaattatt	600
ggaagccggg	gctcacttcg	gacacctcaa	gagaaaggga	atccggctat	ggctccgtat	660
atctttatgg	agcgcaacga	tattcaatta	tcgacctgca	caaaacagtt	gctaaagtag	720
acgaagcagc	cgaagtatta	aggggtatgg	caaaaatggc	aagaagattc	tcttcgttgc	780
cacgagaagc	aggccaaaga	acctatcgcc	gaattggcca	aatcagtggg	aatccctatg	840
tggtagaacg	ctggcccggc	ggtatgctca	ccaacttccc	cacatccgca	aggcggtgaa	900
gaagatgacc	cagattgaca	aaatgacggc	tacggcacat	ttgataatct	ttccaagcgc	960
gaaaagctgc	aaatcactcg	caacgtgcc	aattggagaa	gacgctcggg	tctatcgccg	1020
atatgaacct	ctgccttctg	ccctgttctg	ggtggacgtg	atgaaagagc	acatcgcccta	1080
cgcgaggcca	accgtcttgg	catccccgta	ttcgcaatgg	tggatacaac	agcgatcctt	1140
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aggcacgatg	tgccaggcta	tcaacaaggt	ctgatggagc	gtaaggccga	aaagcccga	1260
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gcttcgtcag	aatgagaacg	aagctacggc	agaagctgcc	acagaggtag	caaagctccg	1380
gaagccgaag	aggcgggaata	aacagcacac	atggaattat	ggctatgggt	tataatccat	1440
gagtggccct	agcatgcagg	ttccaaactc	ggggttatga	ctcatggctc	ataacttttt	1500
tacgaacta	ataaccatc	attatagaac	aaaccaatgg	ctgtaacaat	tcaagacatt	1560
gccaagctcg	taagatgagc	ggtgccggca	tgatggactg	taagaatgcg	ctcgaaggtc	1620
caacaacgac	ttcgagaaag	caatggaaat	cattcgcaag	aagggaagc	agtagctgcc	1680

aagcgttcgg	acagagaagc	ggcgggaaggc	tgcgtctctc	agccgacaaa	gacggatttg	1740
ccgctatcgt	agctctcaag	tgcggacttg	atttcgtggc	aaagaatgcc	gaatttatcg	1800
agcttacaca	aaaatcctca	atacttgctt	atggacaaga	agccggccaa	caaagaagag	1860
ctctcgccct	tcctctggct	gacggacgca	ccatagccga	ccacattacc	gtcgtatcgg	1920
tgtgacgggt	gagaagatgg	aattgggtgc	ttacgaatac	tcagcgggtg	ctccagcatt	1980
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cgagcagtcg	atcagcacat	catcgatcag	gaattgcaga	tcgctcgcg	aaaggcctcg	2160
aagccggcaa	gccggagaat	ctgctggatc	gtatcgctca	aggtgtttgc	agaagtacta	2220
caaggaaaac	acactcttgc	agcaggagtt	cgtgaggaca	gcaagctgac	catcgaacaa	2280
tacctccata	ccggtagcaa	gacctgactg	tagtaggctt	caagcgtttc	acgctcaacg	2340
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ttcacagggc	atagccgttt	ttttgtgcaa	cgggcagcct	tacataaatg	tgaaagatgt	2460
atggtttatc	ccgtgcgaca	gtcttattcg	atgattagtc	atttccattc	aactgttcca	2520
agagccacgc	gacagatctt	tttggtcgg	aaacgtcatt	gttcgccggg	aaatctgtat	2580
ttcggctctg	caatgcaatt	gtccggcggtg	caaacttgca	aaatt		2625

(2) INFORMATION FOR SEQ ID NO:1228

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1228

aaggcaatta	caaccaccaa	gcactcgtta	ctgtgaacaa	ttatactgag	atgctatggg	60
gcttagcatt	tctacagcag	gcaatcccga	cctctcgtgg	aaaagcagtc	tcagttcaac	120
ttcggtttgg	ctgcaggggc	tttcaatata	gcttatctgc	agaggtagat	ttctatgtcc	180
gcactacgaa	tgatattcga	ttgatgtccc	gatgccttat	atcagtggtt	tcttctcaca	240
gcatngaattg	naggctctat	gaaaaatacg	ggtgtagacc	tttctcttaa	ggggcgatct	300
acaaaaataa	ggactggaat	gtatatgctt	tctgcgaa			338

(2) INFORMATION FOR SEQ ID NO:1229

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1229

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcatca	gttggaaaga	aataccgatc	agccccaag	caacggaagc	atgtagtaca	120
cattgtgtcc	gcgattcttg	gtcataagtc	cggcatgtca	tccgtaggac	cgataagaat	180
cttgtcaatg	aagggatacc	cgtcacggca	ttgccacgca	atagtcctcc	gtcgcttgc	240
aggctcttctg	acggccggaa	aaattccaaa	ggaaataacg	ccagtacata	taatgacctg	300
ataattgaag	aagaatttca	ggttctctcc	gaatgtaggc	atatgggtatc	cgtttcggat	360
cgccccatcc	agatattata	gctttgcgga	tgccatcggg	agtgggaatag	acacgtggga	420
aaagcatcat	ggaaccatct	cataatcgta	ttcgcgttgt	gtatagagcg	tttcgtaacg	480
atccttatct	taggattttac	cttgggcgaa	ggccctgtta	cttctgccat	ccttcaacca	540
caggttgga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgtatttt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:1230

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 984 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...984

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1230

ttccggagca	atattccaag	ccactcttta	ttgcgcatat	gcagaaatcc	gcgaccttcg	60
tggtgcgata	aaaacgcgct	gttgtgtact	gaaaaaagtg	acagttggga	tgtgcgggat	120
tcatataagt	ttacacacat	atccggtagt	cctatgcagg	ggttacaact	gtcggtcggt	180
atttcccctt	gcacaccaca	cgttacaact	gtcggtcggt	atttcccctt	gggtttacac	240
aacaagcccc	ctcccacaac	atttaggaca	ctattgggtt	tttagtacct	ttagctgtga	300
taatattcag	atctgctaca	tgaacaatc	ggggacggct	gcaacaagct	aacgatattc	360
tatgtcggtg	tgttcttctt	ctttttgatc	ggctttggct	tttcgccact	atcgggaaag	420
agttggaaac	caatgtagtc	gcaaagcgat	gtcccttcgg	gggccagggtg	gattggtcgg	480
tgctttcgat	ctttcagcga	atcgggtacat	caccatttca	cggacactat	cggtgtcttt	540
tgttgcagat	catcggttatt	cttacgggtg	cgaggctcgt	agcgtgggtt	tcgggaaaat	600
cggccagccc	actgtaatcg	gtgaaatcgt	ggcgggatac	tcctcgccc	atctctcttg	660
ggagcggttt	ggccggaggc	ttatgagtc	ttttcccctt	gtccgctttg	gccaatctgg	720
agctgctcag	tcagtcggcc	tcatactgtt	tatgtttgtc	attggcatgg	agctgaatat	780
caatacatta	agcctcgctt	cagccaatcg	atgatcatca	gtcatgcagg	tattttatcc	840
cctttctctt	aggcttgctg	atcagctata	tgacatataa	ggttatgcag	ccgataccac	900
gacttttctc	ccctatggcc	tctttatcgg	ttctcgatga	gcatcacggc	ttttcccgtg	960
ttggccagaa	tcatacaaga	cgtc				984

(2) INFORMATION FOR SEQ ID NO:1231

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1231

cggcaggatt	ggtcgatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggtatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gatcgctcgg	gacgctatgt	gggacgcatt	tcggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataccttc	ccccctcgtt	atgctcagga	240
ggtagaggcg	ttcgtaccga	tgtccgtgtg	agcaatctca	gttacttggg	agcaactggt	300
atgtgcgcca	gatgaagcag	caagcctatc	agtcgcgacc	gtccatttga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atcccgggta	gcccgaactc	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagccgc	tctgcgggtt	ccttatggca	atgggtgtgag	540
ccgtctgaga	acctgtatct	gcccgtagat	tgcgaagcat	tggggcagcg	tttggcgatt	600
cggctaaggc	gcatgtccgt	caaaccatcg	atctgtcttg	gccggtaagg	gcgtcctctc	660
attggccgac	ctgaagcgtt	ctcgattgat	agccaataac	gaatggaagc	gtcctatcta	720
ttgggctatt	acgtcccgag	caattctttc	tccaacctgc	cggactactt	gcgtcagacc	780
ggtaggccaa	tcagtttgtg	ccttttaagg	cgcgcgcgt	aggcgataac	atcatgtgga	840
aaagacctat	accaatgtga	tgaccaagtt	ccgcttcgga	gggccaacaa	tccaaggtg	900
tacttcgatg	cagatattcg	caattccacc	atacctatcg	cgtagctgtg	ttttctccgt	960
tggcaaaggc	tctgctcgaa	gaggcgatac	cgttcgtgcc	cgttaagggtg	tcaccaaatg	1020
cctccaagaa	tcagtcctga	agccgtgccc	tatgattatc	gctcgctggg	attggcacia	1080
ccctgtacga	tgcagatatg	gtggccgacg	cagaccggat	agtcaagccg	tggcaggctc	1140
ttcgatgcgt	acgtttaact	ggttcttccg	cctgtcgaat	ccaaattcat	gcaaattgctt	1200
tccgaaggag	agatcgacag	ggagagaata	cggttgctac	ggctcttcgg	ctgagtactg	1260
cttataatag	caaatgttgg	atgaatatct	gcccgtgttc	cagaactatt	ataagatgct	1320
ctaactgatg	agcagggtaa	tagcaaacgc	caataaatgc	agctcagact	cgagaacgac	1380
ttatctgcgg	tgtgcccatg	tggtaccggg	ctttgttccc	cgtgccacgt	ggcgcattcc	1440
tgccaaagaa	ggaaaaagca	tctatctgac	ttcgatgacg	gtcccatacc	ggagataaca	1500
ccctgggtat	tggatacgcc	gatgaactcg	gggtgaaggc	cacgttcttc	tgtgtggcgg	1560
ataatgtggt	cgctatcccc	atctttttgc	cgagatacac	cgtcgtggtc	atcagggtggc	1620
aatcacactt	tccaccatct	gcaagggtcg	aaagtccgta	cacgtactat	ctgaaagatg	1680
tggaaaggcg	tgacgcactt	atcaattctc	gcttcttcga	ccgcccgatg	gccatcttcg	1740
cttcctgcag	acctcctgc	ttagaatcac	tacgacatta	ttatgtggga	tgtgatcacg	1800
cgcgattata	atgtgcctt	tcacccgata	ccgtcttttg	ttcggtgggt	cgctatgcgc	1860
gcacggctcc	attattacct	tccacgactc	cctcaaagcg	gctcccaata	tcagcaggcc	1920
atgcctcgcg	ctgtgcgctg	gctattggat	gaaggctata	cttcaaattg	ctgggcgacc	1980
cggccgacta	agccgtttac	ctgttttttt	gtccgatgat	tgtccttacg	gaagacggat	2040
ctcccactat	cctttcgtct	attacggcga	atactaccac	tccatacacg	gtgcgtgtcg	2100
tgagagcaac	atgtattcgt	tcatacggga	ctgttgacc	gtttggaatc	tttcgacctt	2160
ccggtacttt	gtatctcttt	gaagtccgat	tcggaacggc	tctcatgcgc	tactgactct	2220
ccgcgaacaa	cgatgtcggg	gtctctccat	ccatactctg	ccattgagaa	atttcctctc	2280
gaaagggatg	tatatgagca	tctcgctttt	ctgtgggaat	ggctgatgaa	gacaaactcc	2340
tgcaaagtct	ccccatgcac	cgtgggggaat	ggatttgtgaa	atatgtcccg	gcttcacggt	2400
gacaagatag	catccgatct	gaccgatatt	acattccgca	agcctatcga	ctcatctatt	2460
tcgatgcttt	ctctcccga	gctcagccgg	agttgtggat	gaagagatct	tcacccgaat	2520
gggtggccgca	tgtcgatccg	gagccgtatg	gccacctact	gcgccaaagg	cgagatccgc	2580
cgtcggctca	cacgtgcgga	ttccatatgg	aacgccgggg	atc		2623

(2) INFORMATION FOR SEQ ID NO:1232

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1138 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1138
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1232

```

cgggtggaatg  tgcaaaacttc  aaaaatgttt  gtatatatca  aaagaattcc  gatatttgct      60
tgcgagaagt  tttaaataatg  tataatctta  aaaaaacaga  aaatgagaaa  attctttttg     120
acagtcttat  tggcaggagc  gttttcttcg  caaatgcagc  cgatgttact  gcagtcactt     180
gttcaacgcc  taacggggag  aaacccatgt  aatggttttt  tgtacggacg  gcaggagttg     240
tgatttatct  tgaaaaatata  gggagatgag  acagattaca  acaatgtaat  gagtaagtta     300
tgcaagcagc  aaagagattc  tgcgcttcta  attttccatg  tttaaagtga  gtcaaaattt     360
gaacgcagaa  gctcctcaga  cattagaacc  caaacatctt  caaatcccat  ccctggtaga     420
aaaattaagt  gatcattgta  aggagcctta  tagtattcac  tataggctcc  ccaaccctca     480
cataatatga  aatccaatga  cgttatttcg  catthttattt  tactttctac  ttactatagt     540
ggtatctatt  ccccttctgc  tcaggaaata  acattggagg  ctttcaaaca  gatactcttg     600
ataaggtttt  ccttaataaa  tgcatttata  gggatatata  caaactgaaa  ttaagcagga     660
cacttcacaa  aatctcccta  atagaggtta  acactgctac  agataggatc  aaaaatgagt     720
aaatttatcg  atttcatcag  cattatacag  attcacttag  agatgaaaca  gcaagaaaaa     780
aaaacattcg  cttgccacga  gtgaagtgc  aaatttccag  tactctctat  attcaaaatt     840
atattccgaa  accaagtatt  tagaaattat  ccccaaaagg  actcaatata  gtaaggatta     900
ggaactgaat  tcggtgaata  tttcacttat  gagaaatagc  cccacggttt  ggactgggaa     960
atttcactga  atgaagaaaa  gaatatcaaa  ggatatcgaa  tgtaaaaaag  ctacatgggtc    1020
cttatagaga  cggattttat  caggcttggt  attcagaaga  tattcctatc  ctatggggca    1080
targgtcttt  ggaggcttac  ccggcttgat  cattggagat  tcgagaccta  ataccgag      1138

```

(2) INFORMATION FOR SEQ ID NO:1233

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 610 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...610
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1233

```

acgcttttca  gttcgttcac  atcgggtctct  tctgtctcat  aaccgaagcc  tgtttgatgt      60
tcagttctac  gccggacaaa  ccgtatgaag  agagcttctc  ttgcgactgt  ctatctgagc     120
cggagaaacg  gtagcaccga  tcaatacact  tctatatgct  tccggttggt  ctcttccagt     180
agctggtcgc  gtatgactgc  gtattgggga  tactgccgat  cacctctcgc  acgtacttgt     240
gtgcgtttcc  tgaagtagat  tgttgctgaa  gagctgtatg  ctcatagata  tactggagca     300
atcgtagata  tggcaatgac  cgtaatgac  cggcgactt  tctctctcgc  tgtttattga     360
ggaagacttt  gcgtgggaac  ttcagcaaac  gtctgcaagg  aaggtagcca  gtgcgataaa     420
tacagaattg  atgatgaaga  gtagaaagcc  ccgaagaaat  atgcaaactg  cccagtacca     480
aggccgaaac  ggcagtagac  agaggaggca  taagggccgt  cgcgatagcc  acaccgggtt     540

```

tacattgccc ttgcttttgg tactgcccgc gacaatcccc gcagcaccgc gaagaatgcg 600
atcagcacgt 610

(2) INFORMATION FOR SEQ ID NO:1234

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1234

```
cgacaccgaa atgatctttt cggaagagct tctctccggt gataacagga ggctgcccggt 60
aatctccatc cctttttgtc cgggaatcag gcgttggtgt acaaaggagt ggccattacg 120
acgacacaga cgagtaaaaa cagacactct tcatcaccat cggagtttca gggttatcgat 180
tcgttcggct cgcaacggtc ttccctgctgc acgcagaatg tcagggttcg tccaccgtta 240
cgctctaaag cgttacttcc agctgcttgt cttcgggcag ggagaactgc tccacgcaaa 300
gaccgggtccg ttccggacgtc ttccccctga tccatgccac ctgtggcagg ctggaagcgg 360
ctgcaaaaacc tgctcctgaa tcgctgtgcg ttggccacct tttatccacc acttgaaggt 420
gatgaagtcc accgagcagg gatattcgtc tgattttcga taacgacgtg gaagaaaagc 480
agcccggtgt tgcatacagt cctcgaagga gaaactgcat gctgaaatgc cgcgcaccgt 540
gtgcttaacc gttcgtttat tatgcttgta gatggtttgc atcatcagtt cacaagtaca 600
ggcgactcgt tgcccaattc cttgaagtag atgtcggacg gttcgaaggc aggcgtcctt 660
ctccggaata caggaaattgc gcttcggcct gtccctggctg cctcggcat agccggagca 720
agctccgntc tgccccggtg gcacaagaag tctttcatct ccacattgag tttctccggc 780
tcttggcata cttcacattg taggagtaaa atgaaccgtc ttcacaaatg accacagggt 840
ggtctncggt tcaaaattcc gtacggcagc cttgacacgc agacgttttc ggcatcttcc 900
gcttttcggg tate 914
```

(2) INFORMATION FOR SEQ ID NO:1235

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1044 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1044

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1235

cgaggaggta	tggtttgcgc	catcagtcga	tcgaagaaag	cacagtcccc	cgtatcacga	60
attgctgctg	catcagcctc	agggagctga	cgatgatatg	gcgataatcg	catatgcggt	120
catcgtatcc	gcattgcttt	ccctgtaaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaaag	tactgcaagg	cgtttgagag	gcaagatgag	cttgatatgc	agtgtctatca	240
cctcgctatg	ataccatgct	gacgcacaaa	attcagattg	tggtaccgct	ccgtctgttg	300
gatttggtgc	gctcttttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaaggg	acgagacgaa	420
gcggaacagg	cagtccgacc	aggcacgaat	ccggtgattt	ctgtggcgag	catgagggtc	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
agccaagagc	atatcggtca	gcgtaagcat	cagcagggtg	acgaggggac	agcgaatcgc	600
gctgcccctt	cttctatccc	cgtcacaaat	ctgtaagcag	aaagaggaaa	acgaagacgt	660
agtaattgat	cggattggcc	aatgggggaa	tataagggtac	tgtgctatgg	ctttgcgcgg	720
tatcggcagc	tgccgtagta	gttttcattt	atatagttga	gcggttgtag	gaaaaggcgg	780
atcacagacc	ggcaagcatc	aggaaaggaa	tgagtccggt	cattatttgc	atagagcaag	840
agccggaaaag	ctttccttaa	ttatgatcgg	aaagaaaaga	ccaaaataaaa	aaggctcaca	900
cctacgaaca	ggaagtaaat	ggcccaaaat	acattatggc	aacgctctgt	gccgaaatgg	960
tggagcggat	cgtgcgcgcg	attcgtgtcg	gaatagttct	cgtggtacat	ggtctgtata	1020
aatctcgctc	aaagaaaccc	cgaa				1044

(2) INFORMATION FOR SEQ ID NO:1236

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1236

tctacagact	tttctcattt	tcttccgatg	ccgagattac	cttggaggca	atccccgacga	60
tctgaataca	agctatgtac	aggagcttcg	tactctgcga	tcaatcgaat	aagtatggga	120
gcacagagtt	tccacgatga	agacctgact	tcctcaatcg	tcggcacaat	gcccgcgaag	180
tgctcgaagc	agtggaaacct	gccgcaatgc	gggacttacc	aacctgagta	tcgatcttat	240
ttacgtctac	ccgggcagag	gcctgctcgc	tggcaagaaa	atatctccgc	agtgttgctc	300
tctccccacc	ccacctgtcc	gctaccatct	gatatacgaa	gaagaacccc	cctgacacgc	360
ctactccatg	caggaaagggt	gcgcgaagtg	gagaggaggt	aagcctcgaa	ctcttccgca	420
tgcttcgcga	acagctgaca	gagccggtat	gaacactacg	agttcaattg	c	471

(2) INFORMATION FOR SEQ ID NO:1237

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 644 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1237

cgcggttctac	gccgaaatct	gcgattttccg	cacggcggaag	gacatcggggt	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	ccgacgccga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccg	accggtatgc	cgagctattg	ggtcgggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atgcgatgat	ctctccttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgcccg	300
actgatccac	gattattacc	ggaaatatga	acgggagaaa	ggtcccagtt	tgttttctcg	360
gatttaggca	cgtacaagcc	ggacgagtgg	aagtttacag	cgaaatcaaa	cgaaaactga	420
ccgatgatta	tggcatccct	ggtcggaaat	ccgtttcatt	caggaatgca	aaacggagggc	480
tgccaagaaa	cgatgatcgc	gggcatgaat	gccggcagca	tacgtgtcct	gttcgggtca	540
ccgaaatgct	cggaacgggc	gtcaatgccc	aacagaaggc	tgtggcgggc	atcatcttga	600
tacgccctgg	gtgcccagtg	ctctgagcac	ggatgcagca	tcga		644

(2) INFORMATION FOR SEQ ID NO:1238

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1238

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcattttc	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgccctc	ggctgcacgc	ccgttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gttttatatcc	cctttatcgt	agggcatttc	gagaacgccg	atcgcagcat	360
ctcgcccgat	gatgcacacg	ggtttaccgg	ctttcaaagg	gcatactttc	tatatacaga	420
agacctttta	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatatcc	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1239

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 591 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1239

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ccaaaaggaa aagagaaggt gatatgcttt gatcatgcag aaagagggca cagaggtcgc      60
ctgtgttttt ttctactttt tggattgcat aatcgatagc acaaactgca tatgggtattc      120
aactttctga tagtttccga tgaggtgaag atttccgccg agagatagcg atcgactccg      180
aagctacctt cctcgactcc aaaatgcgat tctggactcg gtgggctatt cgcacagcga      240
gctaagtctt ttttctctg cgatgaggac tggcacaagg ggcaggagat tacgtgatgg      300
agatggacac ggcctcggat gaggactcgt atgtgatgga gaaacacgct tgggaagagtt      360
catcgaggac gaacaccaac gtctcgtctt cgattcgact tgatgacgga gcgttacttc      420
tttatcgaag tgatggatat ataccgggca aatcgctctc ggagcctaag ctctttacgt      480
cggaaggatt cctccgcaac aaagctctct ggacgatctg atggatccga ctgccattca      540
accaagcaag cccggggatt ggatctggaa naanacttct tcggcgacgc g              591

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(2) INFORMATION FOR SEQ ID NO:1240

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1158 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1240

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tcattcttgat cagaatattc tcttcctcaa tgccttccgt ccgggtccgaa gggaaaagag      60
aggtaagaga tgattattgt tggttcttat tattgtaatc ttgggggttga agtctttcca      120
aatcttcagc agcttttctg tagcttctgc agactgcctt ggaactcgcc gccggcagca      180
ttcttgtgtc cgccgcaccg aagttctcgc caagggtgtt caccggatag ttgcctgtgg      240
agcggatgag agcttgatct gatttttctc ctctcgcagg aaacatacag cctcatccct      300
gcaatatcga ggggcagatt ggccagacca tcggtatcac ccgcccgttg tggaatcgta      360
ccagctcctc tgctgacagc gtgaagtatg ctgcgccatt tccggcagca aagtcatttt      420
ctcgtacagc acataaccct gatcctcatc ttgccttccg aattttgctg aaaggatttg      480
cgatgatcgc gtctttgtcc gcaccggctc gcataagatc tgctacgagc agataaagac      540
cggatcggaa gagctgtagg aaaatacgcc cgtatccgct agtatcccg catcaaagcc      600
gtggccgcgc cttgggtcag gtaggactcc atgcctaggc cttggccaaa cgcaagacca      660
actccgaagt agaagacagg ggggggagct gaagctgaga gtgaagatat ctgccggata      720
gagatgatga tcgatagcac tttgggggct gacgaactct ccaatgcgct ttgcagtcct      780
gctaccgatg tggagcattg aaatccatgc agaagaccag atcggcttca gccatgcctt      840
ctccgcctcc gaagnatgag tctcgtgcac tattactttg ttgctcccgg aatgcagtac      900
aggtattggg gaatatcatc aggtacgatt aactgatgtg ggacntgcct ttttctctca      960
gcatggcagc aaaaccgata tgcttcttac cgagtcgcgc tccggagccg tatgcgagat      1020
cagagcgatc gctctgcctc ctctaccatt ttacgcaaag ctgttgccgg agccggatga      1080
tttttattcc tgccataact tttcctcttt agctttttct tcgctttttt tcagagattc      1140
gtaggggatc ctctagag

```

(2) INFORMATION FOR SEQ ID NO:1241

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1241

```

gaactaaact tctcactcat tattcaacca atagaaaaaa cagataagaa ataatcattg      60
ctatggctct tacaaaaact tcaaaactct attacaaagt ccacgactac atccttatta      120
ttctgggatg ctccatctat gcttttggtg gacgggcttc atcctttccc aaggaattac      180
cacgggagga ttggccgtat ctccactctg atcaagatcg ccacgggtat tccggctgcg      240
atacctacaa tatcatcaat ctgggattag cggtagctgc tctgatcttc ttggatggcg      300
tttcatggtc aagacgggtc taagcgttgt cataatggcc atttcatccc gataggtgaa      360
gagtatctgg tcgtcacgga gatcgtaaat gggtaaaagt ttttacgcct cttctactgc      420
cgaatgaacc ggccttagct cggtagatcg ctccattctt agcgggtctgg gtattgcat      480
agtattctcc tgaactccag tacggggcgg accgatatta tcgtagccat catgaacaat      540
acaagaacat gtcgttcgga cgcgccattc tactggtgga ctgtaccata ttttggtgctc      600
gtatctggtc aatgtctaca tcgcgcgcaa gtcacctcgc acgctttcaa cctgcttata      660
tattcggcca tagaggttat cctcgttcta cagtcttggg attggtatct caattcgaat      720
agacagtccg tgcaatcctc atcttcagtc tcaaaaacga agagctcagt aatgccattc      780
aagacgcata aaaagggggg gtaccctgct ggatgcgaca ggaggctatt ccgccaacct      840
tgtaaagttc ttgtggtcgt tgcacgcaag acacaaagcc taccatccac agaatcattc      900
aggagatcga cccc                                     914

```

(2) INFORMATION FOR SEQ ID NO:1242

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1242

```

cggtttttga ttagtcttct gtagccttgg ccaagaatat aatagtcgtt atcttttggc      60
ttcaggcaga tttttgggtg atagcagacc tttatcggcg gtcttgctat caccctcaat      120
ttgtggcttt ttctcggttt ttgtcttatt cggaaaaaaa cttttatgtg tttagtagag      180
tcttctgtag atacctcgat ctcatctaca gtaagctcta cgtagtgtgt ggcgagcaat      240
ctttgtgtgt cttaagcact gattccgcaa agcctcttac ctcttcgtcc ttcagccgta      300

```


ttcgtgcaaa	ggtttcttgg	taagaaggca	tccgagaagt	tcaccagctt	cggatatacg	360
tattcgggct	ggcagttcag	tatcttggag	agttccagtt	gagttcgact	atatagccga	420
aaggattctt	cttttggat	atttgaatac	ctctgtgaag	aactgatagt	ttgcttctcc	480
atgcggcacg	gatagtgcct	ccaacgggta	ggatagtgcg	tggacggctc	tactccgcat	540
tccgaagcta	taccggcata	gttgctggcc	atgatcattc	tccagcttcg	agcggattca	600
g						601

(2) INFORMATION FOR SEQ ID NO:1243

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1243

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	gggggggtta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacaccctct	tctctttaac	ccagattggg	180
cattagagat	taacgttaga	atcaagycat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attgggtgaga	tgaaattggg	atgcgatgtg	300
atttctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaattgac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tgttggttga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtctt	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggctcg	gcgatagggtg	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1244

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1244

ccatcattgg	ttacagtcce	gcttttaggg	ttaggcatca	atccgcgagg	cctaaaaacac	60
gtcccaatgc	accgatttta	cccataatgg	caggcatgtg	atgatgacgt	ctatgtcagt	120

cccaaccagc	ctttattttt	tctatgtttc	gtcaagacct	acatagtcag	caccagcttc	180
tttagcttca	gcttcttatc	aggagagcac	aatgccagaa	cgcgatctg	ctttccagtt	240
ccgtgggaag	cgttacaacg	ccacgcacca	tctggttagc	ctttcggggg	tctaaccctaa	300
gcgcacatca	atatccacag	atgcatcaaa	attgggtcgtg	gtgtctcttt	caccaaggcc	360
gatgcctccg	atattgtgta	tgctttcccg	ggccaatctt	gctaaaggct	aacttctggt	420
tttttgtag	tttgctcatt	tgagtaagat	taaattatct	attccgggaa	gtccccctta	480
atcgcgatac	catgcttcga	gcagtaccgg	ctaccatttt	catggcagct	ttgatatcga	540
gcaattcaaa	tcgacaagct	tatcttctgc	gatcgtagct	acttgctcca	tgtgatttct	600
gctaccttct	tacgattagg	ttctgcagaa	ccactctctg	tttgctagct	tcaaggagtt	660
gaatagcaac	aggaggagtt	tttacgtaaa	atcaaaagac	ttatcggcat	agtacgtaat	720
tactacaggc	aatacttgcc	ggctttgtct	tgggttctgg	cattaaattg	cttgcaaaaac	780
tcatatgttg	atgccctttg	caccaagtgc	aggcccaacg	ggggtgaggg	attgctgcac	840
caccttttat	tgcaatttga	tttgctcagc	aacttcttag	ccttggtcta	aaataaaaat	900
tcagacacac	actatatcaa	tgcgagagag	aagatccgaa	cacaacctca	tctttc	956

(2) INFORMATION FOR SEQ ID NO:1245

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 929 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...929

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1245

aggatcccc	gatgataagt	gtgggaagct	cgccctctcc	cttggtctcg	tcagggcctt	60
gcgaatttca	tccgcatcgt	tacctycaat	ctctattact	tccaacccca	tgcacgatat	120
ttcatggctt	ccgtcttcgc	ttgccactct	ttcaactgtcg	tagaaaagctg	tacgtcgttc	180
gagtcgtaga	acataacaga	ttgttcagcc	caagggtgcc	ggcgattcgg	ccggctcctt	240
gtgatcttcc	tcctgtattc	ctccatcgga	aatgtaggca	tagatcgttt	ggctatcatc	300
cagccgaagc	gatgagcgag	gaatttggt	gcgatggctg	cacgacagca	taggtgtggc	360
cttgtcccaa	ggggccggat	gtgttctcca	ctcgtgcatg	acatctactt	cgggggtgtcc	420
gggtgtgatg	ctgccccatt	gcggaatgct	ttgaggtcat	ccatggagta	cttgcccgtc	480
aatgccagct	agcatacagc	atcggggaca	tatgtcccgg	atccaagaag	aagcgatcgg	540
accggcccat	tgccgggttct	tcgggtcaaa	gatcagatac	tcggagaaaag	tacgtttaca	600
aagtccgctc	cgcccatggc	tccgcccggg	tgaccgcttt	ggctttttcc	accattgcag	660
cggccaatac	tcgaatattg	tccgcacctt	gttcatcagc	tttttgtcat	tcattccttc	720
taattatgtt	gaggtagatt	atatcttaaa	ttgcgattgt	cctgtgaccg	aagacatctt	780
ttccacaaag	gtaagaagtt	ccgttcagag	cacgtggttt	actatattaa	ataatgatct	840
ttcggaggtc	aagctttgtt	cctctcccct	taagtgcact	gtcgaagctt	ttgatttcaa	900
aagacaactg	gtcggagatcc	ggggatcct				929

(2) INFORMATION FOR SEQ ID NO:1246

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1246

cggtaaatga aatatgaaac aaaacgggta aaagcacatc tttgtttatt ggattatcgt	60
acacaaataa gaaaattata gatatatatc tatcgaaaaa agattatcgg attgacaaat	120
cggaatttat attataataa atcctatgca aaaaatattt tcattttattt ggagtatat	180
tgccgatata aataggacat gagggaaata acgggatattg ctgtagccga atctggtgat	240
agtgattcaa agagcgggctt gagactaaaa atgctaaaag ctggctgaaa agtgaagcgc	300
ttttgccaac ggaataggag gaacgctcta tttcggcggtg gaaatcgcac gcgccggata	360
attggtgtac aggatattca actgacaatc agaaaattac agagctgatt gtggctcgta	420
tcaccccgcg tccgggttttt ggtgcatccc cctgcaacag aaaggaaaag atattctggc	480
tgtcagagtg attccggaaa acatactcct ttctactatg ttcacgatca tcaccatacg	540
cata	544

(2) INFORMATION FOR SEQ ID NO:1247

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1247

gaggactgat tcagagaaaa acagtcctct aacattattg tagcatttgc atttattaca	60
atcaatgatat aatcattttt gccaatcac acttttactg agagcaaacg gtatcgctca	120
tacgcatagc ttttttaatg acataaaagg gatattctatc gctacatctg tttcccatct	180
tctaaaatcc gagtaatccg aaaagattgt aatggccttt ttatgtatat tctacatcgn	240
ggcatatggt tcgagctcgc caaaaatttg tagaacctat ttcttcatca aggtctctat	300
tggaatttatc aaccaattcc gctttgaaca tctctctcaa gcgtccgcca ttacgggctt	360
cgctttcttg tggaagaaaa tactgtctng atagcattat accttttggt ttaagccaat	420
tggaacctna aaatttagcc tggcagaaat acna	454

(2) INFORMATION FOR SEQ ID NO:1248

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1248

agttcccgaa	tccgagttca	tccatcttgg	ccaccatagc	tttggcacgc	gcgcagcctc	60
gatacggtccc	tgcggaagaa	gagccaactg	gtcacctgg	ccgatacgaa	gagcatagcc	120
gaaccgttct	tgcatgctgc	cgcacaactc	cacatccgat	acaagccgct	gcattccatgg	180
cctcatccgc	attcttttgg	aaatggggat	agccgttggc	atcggggata	ccccccgtat	240
tgacgaaacg	aatccgccc	actgaatgat	cttgctcataa	gccgagcgat	ccacatgagg	300
tctctgatca	cagggaagcc	ggccgagcgc	caaggctcta	tcggatcgta	tcaccatcat	360
cgaacgacg	catgtgcagc	tgacaagtgg	tgtgctatcg	taccggccc	tggggatgac	420
cattgatgta	gagtgcagc	aaccgcaaat	acct			454

(2) INFORMATION FOR SEQ ID NO:1249

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 881 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1249

attggctttc	agggctctcta	ataggagcct	tgccgaatcg	accntgctca	acggatgacc	60
tctttgcgct	cactcggtcca	tggtttatcg	gcaactccgc	tcctgccaga	tggtatgat	120
gcctcactcc	ttgcagtgct	tcgacctgat	tcgccgtttg	ggaacgtccc	attcatattc	180
gttttcggtt	cggtttggcg	cgtcaaaatg	cgtatggagt	aaccgtttcg	cacaagttct	240
tccgaagtgc	ccgtgcaacc	atcccatttg	cccggtaatc	aaaacaacgt	cttttgcata	300
aagaaaccca	caaaattcaa	tccgctaaga	caccgaaaca	aattataaaa	tggtatgcac	360
aagaaagtgt	acctcaatgg	aaaaatacgc	acaaaaaagt	tttcaacaac	gaagcggagt	420
ttggaatgat	tctaaataag	ctcctaaaga	gagggggcaa	tcggagtata	aaagacaaga	480
aaacggactt	tgcaagtcca	aatccgcttt	tcggaagatc	ttgaaacgat	ttatatataa	540
ccattttcaa	tttatatata	gattgtttta	gatttatata	taaaacgttt	caataaatat	600
atagatcata	aatgatttat	acataaattg	caggataaaa	aggccgattc	gggaggtgat	660
aaaacaaatg	caccacccga	gtttaaagca	aactcagtg	gtacccgggc	tcttgggtgg	720
attaccgaag	gggtatccac	ccttatatac	cataagtcta	tacgtctttt	ttctctaacg	780
cagtagtgga	tgtgaataaa	anggagcgac	tgtagcagtc	gtatcggcag	atgttgagg	840
tcataatatc	ggtgtgcata	tcaatttagc	agttttattaa	t		881

(2) INFORMATION FOR SEQ ID NO:1250

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 576 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1250

```

gggacattcg gtatgtatat cccaagaaat cgttcaagta tgaaaaagga aaactccgac      60
tatggatgat ctggtggaag ctttccttac agcttcgtcc agagtggagac caactcgggg      120
ctgggggtatg acaagaacgc caatcacacc tgattacata tgccaaaaaa gaagagaacg      180
gtacgaacac gctgaatacc gctgggccaa ttatgacaag attcataaca aagattttgtg      240
gagcgcacat ttacgtatac atcatctgcc aatgctctct acacacctca agtaacatca      300
atccgaccaa ggggtctcgtg tgctgggtcat gggtggaata tctccgggca aacggatcgt      360
ttgggtctgat cgcagtggaac ccatgccaac gggtagaaga catcgtaatg caagaaggca      420
gcatgaagct ctacccgaat cgggtcaaga atatgctgtg attagcctgc cgacggcagc      480
aaactgcaag ctggtgttta cgatatgcag ggcagaagta gtcgctgagc ttcttcttcg      540
cacgaataca ggctgaacgt gcagcacttg gctaag                                576

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(2) INFORMATION FOR SEQ ID NO:1251

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2189 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1251

```

cgtccatcat gccaaagagca gcagaaacaa cgatacagaa gcccgtcaag agagcaacat      60
attggggagt gaagattttta gctttttcat ttgttcttcc tccaaaatgt ttaggtttca      120
tataagtgtt gatcagaggt gtcatacggt cataattagg atggcgaatg acattccttc      180
cggataagcc ccgaattacg gatcacgacg gtcagcaaac cgatcagaca gccgtaaagg      240
atctgccgga cttggtcatc ggcgaagtca catagtcctg ggccatgaag atggtccgag      300
catcataccg ccggagaaca ggtggaacca cggagtggcc gggaggatgt ggggctggcc      360
aagtgcagaa tacctgccag tacgatcaca gagcgaagat agacacgggg atatgccacg      420
tgataatctt cttgtacagc aatagaccaa tccgagaagc aatgcgatag cactgacttc      480
acccaaagaa ctgcttcacc gataaacatg tgcaggctctg tggggatatt agccaaagcg      540
agggtgcgcc gtcattgtct gctttcatca ggccgagagg cgtagcacgg tctcggcatc      600
cagataggaa gtcattgtct cttcggtagg ccagagatca tctgggcagg gaaagagatc      660
aggaggaata cagcaccgac caaagcgggt tgaagatggt gttccccaag ccgccgaagg      720
acatcttgcc caatggatag ctactactgc accgatgata atgatccaaa cgggcagggt      780
gctcgcaggt tgaaagccag caatacgccg gtcaagatag ctgagccgtc catatggtag      840
gctccttgcc caacatatat ttgctgatca ggtattccac gagcaacaag taagaacgga      900
tactgccgtt acgatcaccg caccgattcc aactgatata ccgacatggc caaggcaggc      960

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aagagggcaa	tcagcacacc	tacatatctt	ttttgatgct	gtctccgctg	tggatgtgcg	1020
gtgaaggaga	atgataat	tattttccat	cgcttatttc	ctttcttatt	gcttacgtct	1080
ctttggatac	ccatcacagt	cttcttggtc	tggeggatat	aatccagaga	ggacgggttg	1140
ccggacaggt	gaagctgcac	gaaccgcatt	cgatacgtca	accacgttgc	ctttttccgc	1200
tgtttcccag	ctcttatata	aggtgcgcgc	ataaggaaag	ccggattgag	tcccatcgga	1260
cacactccga	cgcattggcg	catcggatac	agtcgcgcac	aggcttgcca	actgcctctt	1320
ctcatcgaga	atcaatactc	cggagctgcc	tttggtcaca	ggcacatccg	gtacagcaga	1380
gcgcgtccca	tcatcggacc	tccgccgatg	atcttgcccc	tttctccggc	aagccacctg	1440
ctgcttcgat	caaagccgca	ataggagtac	tatacgaacg	aggaggttag	acggacgaga	1500
cagttttttt	cctgtaacct	cacgatgcgc	tcgaccagag	gcttggtctt	ctgtactgct	1560
tcgtacacgc	gaataccgta	cccacgtttt	gtactacggc	acctgtgctg	ataggcaggc	1620
accgcttttt	acctgcttgc	ggatcactgc	atcgatcagc	tgcttccacc	gccttgagga	1680
tattgcacct	tcaacggcat	tacctctatg	cccggtatgc	agtggccagt	ttggtgaggt	1740
gagcaatagc	atctttctta	ttatctcaac	tccgatgacg	gccttgttta	cctgaatggc	1800
tttcatcagg	atatcacgcc	gatcatgac	tcttcgccgt	gctccagcat	aaggacatgg	1860
tcctcgtcag	ataaggctcg	cactctacgg	cgttgatgat	caggatctca	gtttgttgcc	1920
cggaggaggg	gacagcttca	catgggtagg	gaaggtagca	cgccaagacc	cacaataccg	1980
ggctgcagaa	attttggtta	cgatttcttt	gcattccagat	tgcatctctt	gacgatggct	2040
ggtgagcgat	cgatgcccct	tcccattcgt	caccttctac	gctaataaag	actgcgggct	2100
tgggataccg	cttgagtcgt	atacgttatc	gatcttcagc	accttaccgg	acacagttag	2160
tgatatttag	ctgatacgaa	tcctccggc				2189

(2) INFORMATION FOR SEQ ID NO:1252

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 839 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...839

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1252

cgctaaaaat	cccgtaaccc	aaaactccgg	ttacggggatt	ttatttggtt	ttagaaagag	60
gtgggacttt	caagtgtagg	tttcagtagc	aaataacctga	gtgaccggcc	gtaggtgcgg	120
atctcaatgc	gcttaccgaa	catgacagat	cgccatcgag	gtgcattacg	ccctctgtct	180
cacgctcaat	gatcagtttt	cggccttata	ggtgtccaga	ttggagttgc	tggtgatacg	240
cttggaaga	gttgtaaagc	caattgtgga	gcttccaatg	gattgaaagg	acggtaataa	300
ctacatccat	tttaccatcc	tccaaatccg	ctaattggagc	gattaaggcg	ttattgccat	360
actggggcgc	attggcacca	agtgacgagg	aagctttctc	ctcaaaggat	ttgccgtcta	420
tcgtcagttt	ggatccttcg	gtcgttttgg	aggtaactct	cgatcatggt	tcgcgcataa	480
gtgatagggc	tcgactaccc	gcttggggca	atttcttgct	aacctcggca	tcgaatccca	540
tccgcagggt	caaaagaaag	ggcgactatc	cgcttcacag	cgatcgatgt	gcgaacatgt	600
ccggctctga	tcacttcgag	agctttcccg	acggtgatgg	cagcttgagg	gcacgtgccca	660
accggttgcc	tgatcctttc	gggacgtacc	cagcactaca	tcggtgtagc	gaaggctttg	720
ggctatctcg	ttcacgttcc	atcgctcctc	actgcaatga	cccagtcgta	atgcttctcc	780
actgttgtgc	tgccaattca	cgtgcatggc	cagcacgttg	cgaatagggtg	ataagagtt	839

(2) INFORMATION FOR SEQ ID NO:1253

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1253

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aaatacgaat tgatactccg gtacgtagtc ttttcggctg attgtcgctg ggcacatctg      60
gcatacctctt tcatcagacg actgaatctc tctgcgagtc gcccggttta attgaagtcg      120
taaccgtata tatccagatt tactgtggtt gtccgcccac accgccaccg cttccgcccg      180
gagtaacctt ataacttgaa tctcaggata atcatccagc atggtacgta tctggtcggc      240
cacttgttca tggagcggtt tctctcggtt cgtccggtaa gaccgatatg gaaatgatga      300
tattcgtaac attgtcctgc atggcgggcaa acatgctgga agctcggcct gaccgacact      360
aaagctcggt ctgtcgattt ccggtatttc ttctcccaac tgtcgatcat acgaagagca      420
aaggctcggt gcagattgac tccgtgccca ccgcatattc tgctgaatt ggatatagcc      480
attgtcggac gaggaagaa ttcggtttga c                                     511

```

(2) INFORMATION FOR SEQ ID NO:1254

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1018 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1254

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gttcgccttc cggcagattc tttgtggtgg agcaggcacc tgtcagtaga caaaaaggat      60
ggggaggaat acttgccgta atactttcat cggattctat cgctttgtcg gaatgatatc      120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatggtt      180
ttcgtctctt tcttctgccg aaacggaaca gatcggacaa gcgcgccaac tttcgactga      240
tcacaagccg ataccggctc ccgttatctc tccttcgagc agattttcat tgttttcttg      300
tggaagagtt tgaggtgctg tgctcctgat ttgtccagac ggtctccacg gatacgttgt      360
ccaccaaagt cttttcctta ttggtcggca catggagccg gaagcgacag atcctccgat      420
cacgacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat      480
gtaccgccc atcggtgcca tcgtgacttt ccataccgat gttcagtcgg gagccatcga      540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaaag      600
ttgaaccac tcgattgcga agccaaataa gagcctgtgc caagagtccg atggcctgct      660
tggaacgctc ttccggcccc atacttycag ttgggtttgg atagagaagt cctccggtgc      720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaacatcg      780
aatcacctt tctcgacgtc ttgctaccgc tctccatcac atcggcacgt actgctgcac      840
tgctttgaag ttgacgtaag gctcttgctc attgccgctc catgtacgta gctcgatggg      900
tcgatatgta agacctgctt acccacgacg ggagcgtata ggcgatggtg ccgccaccac      960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcatg      1018

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(2) INFORMATION FOR SEQ ID NO:1255

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1255

cgcaggacga	agtcgttctg	attcagcttc	catgccagga	agagggctga	gtcaccttcg	60
caaattcggc	cggctggagt	cgcaacggtc	ctatcacgcg	cacgaatgcg	agccttttat	120
atccggagct	atcagtatgg	tcagagcaaa	agccccaaca	tggcggcata	gaagacggga	180
gccagcgact	cgaaaaatcc	gtctccatga	gcagaaccat	aaagcctatc	accaccgcga	240
gaccgtccac	aggagctgca	tcacggagcg	accgcccata	atgaaaaggt	gggaatgtcg	300
aagtcgtaac	ttgctccgca	gacagcaaac	caaccggcca	cgagagcagc	agatacagaa	360
tgatgggtaa	accaatcgat	ccgtccctta	tatcgncttc	gatctctctt	aaaagacatt	420
gctgtagtga	attgcagtgt	tgacatcttc	gtggccacgg	cttcgncctt	cggagacagg	480
ttgccttcgc	gagataatac	ttcatca				507

(2) INFORMATION FOR SEQ ID NO:1256

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1131 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1131

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1256

tatgaaacct	ctgcattggc	gcgaaatgaa	agaggtcgat	cccaatcgat	aacccttata	60
gatgctcgtc	ccagacaggc	ctacgaagta	gagcatatcc	gggagcaatc	agcaatgccg	120
gtggaggaaa	taagggcacg	catagggaaa	ttcctcacga	caaaccgata	tatgtatatt	180
gcgccgtggg	gatgaggggt	atttcgcctc	gaacatcctg	agacaatgtg	gtttctcaaa	240
tgtgcaaacc	tgatcggtgg	ctatcgcttg	tattctacca	taacggcaga	ctacgttctg	300
ccggccaacc	tgccaccgcc	caacttcctg	caaaggatag	tcctcttccc	atacacaggt	360
accggagggtg	gatgcctgtg	gcatgtcctg	tcggggccga	tcctcaagct	caaacaatcc	420
attgacaaa	tagctgtagg	aagcagctct	gcacccctgg	tactgacccc	ggatttgctc	480
gtgatgctca	gcctggtgcg	acacgaccgg	acacaatctg	atccggcagg	agaccataag	540

ggcaaataca	aagtgaccat	cgaaaagact	gcttgcaagg	aggaaggccc	tgcgtgaacg	600
agactccatc	caaaggcaag	acattcattc	tcttcaggat	gatctggaca	aggctttggc	660
cacattcgta	ttggccaacg	gagcagagcg	atgggacagc	cggtgactat	attctttact	720
ttctgggggt	tgaatccatc	aaaaagcctc	acgccgtcaa	agcgaagaaa	gacatttggg	780
gcaaattgtc	ggtatgatgc	ttccgaagaa	cagcaaaggg	ttaggactgt	ccaaatgaac	840
atgttcggct	tgggagcgaa	gatgatgcgt	atgggtcatga	agaaaagcat	gtggactcac	900
tggagagcat	gcgtaaacaa	gcgttggaaa	aggtgtagag	tttatagcct	gtcagatgtc	960
catggatgta	atggggatca	tcgggaagaa	ttgctcgacg	aggtaagtat	cggtggagtt	1020
gccacctatt	gaatagagca	gaagaggcca	acatcaatct	attcatctaa	atttgtgcgt	1080
aacaatcaat	cgaggctacg	gccttcagcc	gatggaaaat	gtagagttat	c	1131

(2) INFORMATION FOR SEQ ID NO:1257

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 538 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1257

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggg	cgtcatatcc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgtccacact	tcataaatcg	cagactgaaa	aatagctgac	180
gaaaggcctc	attcgaaatg	aggaccatgt	gcaaaaagctt	tggataaagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaggag	tgccggctat	gccgattaga	tgtttagcaa	300
cgaactcgga	agaaaaggta	cacgatgaca	gacagtatag	ttatatccct	acctacaatg	360
agcgggagaa	cgtggccaaa	atgatagaaa	cgtcttcgct	ctacccaaaa	ctttcgatat	420
tctgataatc	gacgatggat	ccccgacgga	acggctgcga	tcgtcaaaga	gaaacaggcc	480
atctatcccc	aagacttcat	ctggctcgaga	gacaaggcaa	attgggtctg	ggtacggc	538

(2) INFORMATION FOR SEQ ID NO:1258

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 597 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1258

tcgcgggtag	ccttggtcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgttttac	60
cgtcgggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcgtcaa	120
atgctctccg	gtattcggtc	cggctgaggg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tgggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaa	aactcgttat	ccccctcttt	aacgagagtt	gaattatagg	300
agaacaaggt	ttgtcggata	aaagtgtacc	gcccctgaat	gaagcatcga	tgcaatcgct	360
atcgggtcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaaag	480
aaatggatcg	tctcagccgg	aaaaagtttt	tctgcagtac	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaaggtt	tcggatatat	aaacgaagct	ttcggatagt	atccaag	597

(2) INFORMATION FOR SEQ ID NO:1259

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1259

tattcggaaa	ggtttgtagg	cacagcatatc	aatggagcaa	aagttcaaaa	agaattgcag	60
caatggatgc	gctatancaa	gaagcatcaa	gatgcaacag	agacggactc	agctatgccg	120
tattcgggtgc	acccaatctg	tctcgtcat	tgcaaaggcc	attatcaccg	acntcattaa	180
tgagaagtca	cagaatgaaa	tgatagaaga	aagatagcct	cctcttctca	ttttgttttg	240
tttacacttc	gaacaatacg	gtggtgcaat	ggataaaatt	ggggagagca	ttggacatat	300
cctgctcaag	gctacaggta	tgggtatttc	gcatgcttat	atgaccagcc	caatgaggta	360
cagggccttt	cgggaaaaat	ggcagaaaata	ctggcatcga	agacgaatat	cctacggttc	420
tgatacagtt	gggatattgg	ataagatgcc	gtattcgttg	agaagaagtg	tccaatcctg	480
cattatccct	attccttcga	ttgaaagaat	caagaggata	caagcctcaa	aggtgatcca	540
ccgaaaaatc	tctttggggc	cggacagaat	gtttgagcat	ggctggcaaa	acgaagaggg	600
tgctgcaaag	acgaaacgct	tgcagcacc	tcttgagttt	cagcctttta	tctcctggct	660
tatttcttca	ggtgtttggc	gaagaaccga	gcatggcacg	gtatagctcc	atggagtttt	720
cttcacgatg	gaatcgtggc	cttcgttgta	cttcaccata	tagggtactt	cgaatccgcg	780
ggcagcagtg	ccgttacgat	ctgatcgac	tcgttgatat	tcacgcgcgg	gtcttggtc	840
cctgtacgac	gaacagtggc	ttattgatct	tgtcgatctg	gagaaggggg	acacttccct	900
ggcgatagct	gcttctctcg	gattgtcgag	gcgtaacaaa	tttcttgac	catttccctta	960
aacggcttcc	aatattcttg	aaggagtcca	agaaggtgta	aatgttcgat	acacctacgt	1020
aatccacacg	caggcataga	gatcgggtgt	tttcaccaga	cccatcagcg	tggcataaca	1080
ccgtggcttg	caccgtatat	ggcgatctct	tcaggatcca	cccaacctgg	ctgatagcat	1140
agcgcacacc	gtcctccaca	tcgtccatgg	ctttgcaccg	atctgtttga	atccggcacg	1200
gaggaattcc	ttggcgtatc	cgcctagatg	cggaaattga	cttgcagggg	ggcatatccg	1260
cggctggcga	agagtgggtc	tcgggattga	agccccatga	gtcgcgtatg	ccttggggggc	1320
ctcatgcgga	ttgacgatca	ggggactctt	cttcccttcg	agggctgctt	tcgcagagtg	1380
ataaagccat	ggatagtgg	tccgtcgcgg	ctcttgaatt	tatggggcgc	atctcggcca	1440
tatcttccct	cttgagctga	ggcatcaggt	atagaggagg	gtaaaacttct	tgggtgcgcgt	1500
atcgaactgg	tagtaggtgc	gtatagcttg	tcgctttgta	cggcgataag	caggatggct	1560
tcacatctc	gtaatcgacc	acggagaatt	ctttgccctt	gaattccttt	tccatcactt	1620
gtgcagctct	ttgtaggtgg	cacttacggg	tacgactacg	gacttccgcc	ttcgtaggcc	1680
atgaggtcta	tttcgtagtt	tctcttacga	gagagtgcag	gccgctgacg	tcgtagtctt	1740
cgttggcgaa	gatctcgcgg	atgacttggt	ctgcttcagg	tcgtagagta	cgatacaggt	1800
cttgctcgctg	tccggttggt	cagtacatag	gcttcgtctt	tgttttttga	ggcatagttg	1860
aagcgatgac	tccgaagggtg	tcgtcccagt	gtgttttctt	cagcagacgg	actcgcctgt	1920

agccaaatcc	ttgtagtaca	actcggattc	gatcccgttt	cgaggcggct	gtatccacgc	1980
agttcgccgt	ccttgtcgaa	ctcgtaacct	gaatgggggt	ggccgcatcc	ttattctcgt	2040
agagctgggt	cagctcgctg	ttactacatt	cagtttgtag	ggttcgaaga	tctgcggatt	2100
gtttttgtca	tggatatgat	catgtagtcc	ttctgctctt	tgagcatggt	gaggatgaag	2160
ccttcactcc	gtcaaagggg	gtgagatcgc	gggtattgct	gccgtgatat	tcgaagcaaa	2220
gaggtgatat	ttctcattcc	ctcctttgtc	catgcaaaga	agagacgttc	gtcgttgatc	2280
catccgtagc	ctttgatcag	ttctcctttt	cttcgatggc	acgcttgacg	gtgccgggtg	2340
caatttcctt	gaatagacat	ggcgtttgcc	ggcatcgtcc	ttttccatgt	atgagaggta	2400
ctgccgttgg	ggcttagctg	aaaagcggaa	gccttggtgt	tggcaaagta	tcttctacct	2460
tgtatttgta	gttgcccttg	tccaaagctg	ccagtgccta	agctcttctt	cggtcgaagg	2520
caaggctgta	ttgccgggca	atttggtatc	aatcgttgta	gcgtaagcgg	caggctgaag	2580
cccatctgct	ctacattcct	tctatcgtat	tgccggacag	ggtgccc		2627

(2) INFORMATION FOR SEQ ID NO:1260

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1260

tccccctggat	gccatcttgt	atgctaaaga	aacagcttca	tgcacgaga	tgcacctgca	60
atccgcgaga	tcttgccatc	gaagaatttg	tggagttttc	attatctatg	cccaaaaaga	120
tcagtcacatc	gacttttagac	aataccaatt	ctctatatct	gtatagtcac	tgcctttgtc	180
tgtccccccg	agaatgggat	tactctagtt	ttcatgctct	ctagagcata	gcaggtagaa	240
tttacttctg	agctttggag	tcattgatat	aatcgacacc	ctttacgcga	gcaacttttc	300
cagtcgatgc	ggtacattct	tgaatccctg	caaggcttct	cgatagcctc	attcttaata	360
tccatagctt	tggcagcaat	ggcagttgcc	atgcattgtg	cctggttggtc	atgccggaca	420
gagctaaaag	ttcctcatcc	aaacaaaagg	tgaattaaga	ttcatgacaa	ccaattcgtt	480
cttttcattg	tccaagcagt	tgtattatcc	gttcgagctt	ccattgcgaa	cggtagaagc	540
gggctacagg	aggatgttcg	gctacccatc	ggctgataaa	aggatcatct	cccagtagat	600
gaagcaatcc	tcgggttgct	gattccgagt	gattctcttt	tcgcttctgc	ataaagctcg	660
aatcggtgat	cgtatcgatc	taaatgtccg	gtgtaatat	gagcagaatg	gccacattag	720
ccctgaagtc	gtacagttgt	ccagttgaaa	actgctcaac	tctattacat	aataaggatg	780
aggacgtaag	cgacctgtct	ggccagacta	aaaccgacat	tgcctgccaa	accacatcca	840
aaccggcctt	acagagcggt	tgatacaacc	acatggttgt	tgtgtcttgc	cattactacc	900
cgtgatgcac	accataaatg	catcgggtga	agtccggcga	actctatttc	cgaaacgata	960
cctatctctt	tggcaacagc	tgtcgaataa	taggagcagt	gtcgggaata	cccgggcttt	1020
tgataatttt	tttgcttcga	ggattatcgc	ctctgtgtgc	ctaccttctt	cgtacggttg	1080
gcataatcgg	taagttcttc	cttgattttc	ggggctatct	ttccgtatcg	gatacaaaata	1140
catgcagacc	tttggttga	gccaaaagag	ctgctctact	ccgctttctc	ctgctccgag	1200
aacaactata	tcataatttca	atcggccatc	ttcccagatc	gttattttatt	cgttatcgca	1260
tcttgagtgt	tgctttgtaa	ttgcagccat	gataatccct	acgagccaaa	agcgaacagt	1320
gatttcgatt	cgggaatagc	ctgcataggc	ttctggagcc	atgcacatct	gcggcattac	1380
cggcttttgg	aaatgggtgt	ggagggagtc	attttgaaat	ggccgacctt	c	1431

(2) INFORMATION FOR SEQ ID NO:1261

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2417 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2417

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1261

acttgatgtc	ttcgatcgtg	tcgtagatat	agataggtag	ggatctctag	ccacggtttc	60
cgcttgcttg	cggcagccac	gctggacgaa	cctggaatcg	atgataatag	cagatgaagc	120
tgctgcgagc	accacatccg	attcggaatc	tgccccacaa	ctttgggaat	gccattacct	180
ggattttctc	tgtagaaagc	ggaataacca	aatcggccaa	agcttctacc	gagccgtcca	240
cgtecccttg	acaatgaggt	tcagctcttg	gaagttgccc	attgcacggc	gacgctgatg	300
tcttcgagcg	tgagtatctt	gtgtgtacgc	aatccctgct	cacctggagt	tgctctcggc	360
ggtttagctat	ttcgcgagcc	tctgtctccg	tcccaataca	ttgaaagtat	caccggcagc	420
cggcgcgccg	ttcagaccga	gattagtacc	ggttcggacg	gtcctgcctg	cttcacgcgc	480
tgattccggt	gttgaacatg	gctttgatgc	gtccgtgaca	ggtaccggcc	agaaccacac	540
gcccataattg	agcgtaaccg	tctgtaccat	gacagtggag	acataaccct	tcccttgctc	600
agagaagact	cgatgatcga	accgatggca	cggcggtagg	attggctttc	agctctaaga	660
tatccgcttc	gagcagaacc	ttctccgcaa	ttcgggtgatg	ttgatgcctt	tcttgccgga	720
gatctcctga	ctttgtatct	gccaccccag	tcctcaacga	ggtagtctcat	gtttgcaagc	780
tgcctttgat	cctttcggga	ttggcagccg	gtttgtctat	cttattgatg	gcgataccat	840
cggcacacct	gcgctgaag	catgattgat	ggcttcgact	gttgtggcat	cacatcgctc	900
tcagcagcaa	cgataatgat	ggcaatatcc	gaatcttcgc	accacgggca	cgcatagccg	960
taaaggcttc	gtgtcccggc	tatccaaaaa	tgtaatacgg	cggccactgg	gaagtttcag	1020
accataggcc	cgatgtgctg	ggtgatcccc	cctgcttccc	cttcgatcac	attcgtatcc	1080
taatgcggtc	cagtagcgaa	gtcttaccgt	ggtctacgtg	tcccatgccg	taacgatccg	1140
aggacgcgca	acgaggtctt	cctcattatc	ctcttcgggg	caatggcttc	taccaaatcc	1200
gcgctgacaa	actcgtctct	gaagcaaat	cttcagctac	gatattgatc	gtttcggcat	1260
cgagacgctg	attgtaccga	ccatcatacc	gatactcatg	caagtggcga	tgacttcggt	1320
cacgggacgt	ccatcatatt	ggacaggtca	cttacggtaa	cgaattcggg	qacttcagtg	1380
tgtgctgctc	ttcgctgttc	agctccatgg	catcctgagc	tcacgggaag	ccgcatcacg	1440
cttgctcctc	ctgtatcttg	ctccacgccc	agcgtggtac	ttgttttttt	cgctcgtgag	1500
cgtgccagcg	ctctctttat	tgtctctgta	catcttcgtc	cgagatctcc	accttggtg	1560
ggagagacga	cgtctgttgt	tcttgccggc	tccggaagcg	ttggactgct	gctgagcgga	1620
cggttgttgt	tcttattgcc	ggacgaatgg	tttctctctc	cggcatacgt	ttgccctgct	1680
ctccgctcac	ctttgccggc	tctttcttga	catctcggca	gctttgttga	tgcgcttgcg	1740
tttctctctg	ccatcggcat	cgtttgctcg	cgctggcggt	cttccttcgt	cttttttttg	1800
ggacgcgtgg	atgattgatc	gaggagaggt	ctatctttcc	gaccaccttc	acttgtggct	1860
ccgcgtgttg	gtcttcagac	ggaaaacttc	ttcgggtgct	tcttttttct	catctcttga	1920
gccggaggag	gtgtttcagc	ttcttgaggt	ttctgtgtca	gaccgggtgc	tgtggtttat	1980
ccacagggtt	ttcgaccggc	ttggcaacgg	agccgcctgt	acaggctcct	ccggtttggt	2040
ttcctcccg	ttaggtcttc	ttgctttggt	ttttcttctc	tgggcttata	ttccttgacg	2100
gggacgactt	tgtttctctc	tttacagggt	cagtttctct	tgccgggttg	tcctcagcac	2160
ggtgtcaggc	tccttgctct	tgggcgaagg	aaccggttca	gccgggtttc	ggtctctact	2220
ttccctttga	tcgtaaaagc	aggtcgcata	tcttaggcac	ttccgtagct	attacctgag	2280
cttctttcgc	tgccattccc	gcgtttcttc	tttgccggac	ggagcagatg	caggagtgc	2340
ttgcttttgc	ttacgaatct	cttgcaaatg	cgctcggcct	cacccttggg	cagcgacttg	2400
caaattcggg	cagcagc					2417

(2) INFORMATION FOR SEQ ID NO:1262

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 722 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...722
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1262

```

ttttctctga taaacgatac gaacttgggc gatgtcggac gctatcgtac aataagaaac      60
tcaatttgaa tattgatcct gatatcaaag tgcttgacaa tgaagatatt attgagatca      120
tcaagtatct tattgagtta gtaaattcaa ggcacagta gatgatatag accacttgtc      180
gaaccgtcgt gttcggctgt cggagagcag ctttacaacc aatttggtat tggtttggcc      240
cgtatgccag gacagtacgc gatcgaatga atgttcgcga taatgaagtt ttcaacctat      300
cgatttggtc aatgctaaga ctatttcctc cgttgtgaat tcttctttgg caccaatgcc      360
ttgtcgcagt tcatggatca gacaaacca ttgctgaaat aacgcataag cgacgtctgt      420
cggcattggg ccccgagggt catcgcgcg aacgggcccgc tttgaagtgc gagacgttca      480
ctacacgcac acggtcgtct atgccctatt gaaacacctg aaggacctaa tatcggctca      540
tctctccctc ctgctgtatac gccaaaatca gtgatttggg ttttattaaa caccataccg      600
ggaagtaaag aacggcaaaag tagatttctc cgacaatgac tgaaatacta cacggcagaa      660
gaagaggaag agaagaccgt agcacaggga aatgcgcctc ttgacgaaaa tggtcgattt      720
gt

```

(2) INFORMATION FOR SEQ ID NO:1263

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 659 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...659
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1263

```

gaccgctcct tcgaagccct cggacagggc aacctcgagc tggccgagca gcactccgtc      60
aggccatcaa agcctatccc gacttgccct ccggtatccc ctgatgaaca acctcgggtc      120
catccagcag agacagggca agccggagaa gcgctgctca cctacagcgc agccctgcaa      180
aagctccctg acgacagctc ctgcgcacga acagagccat gctcctgacc gaaatgggac      240
gaacgacgaa gccatattcg actacaacga actactcagg gcagagccgg acaagagatc      300
ttccactacg gcagagccat gctctatctg gccaaaggaa tgtcggcgat gccgagtcgg      360
atctggaaga aatcctccgc gtcaatgact cccgctcaaa gcccgctctc gcacgcacct      420
ggtggcaacg atgaaaggcg atacgacaaa gccgaacggc tctacaacta cgtgatagac      480
aaactcccga aaacgccgca gcctacgaag ggcgcgcccg cctcttctcg aacaagggat      540
gaaaggctac gccctgcgcg acatcaacaa agccttcgaa tacgccaccc gcctgccgcc      600
tccctcttcg tgctgcgagg cgagatcaac gccgccaagg cgacaaggaa agccggcggg      659

```

(2) INFORMATION FOR SEQ ID NO:1264

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1567 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1567
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1264

```

ccaggacaat gcaaattatt tccatcgtct gcgagaaatt acccttgaat cagcaacacg      60
aagttggtgc cggcctctca acttccaaag tattggaact gaacaaagaa tctctgcttg      120
ctctgatcga agaatcctta tacggcacca tggtagagtg acttccgctg cgaacgggaca      180
gcctctcaaa tgccagtctt gatagaaaac catgacaagc gcaactccga tgtttactcc      240
gatgcaccac aggtactact gtacgtctta tcaaagccgg cacttatacg gtgaatacaa      300
agccgagggg tatcctgagg caactcgtac cattacgata aagacaaaga aaccgtcatc      360
atggacattg cattgggcaa ctccggttct ctccgtgacc cgatttcaca gcttctccta      420
tgaccatctc agtaggcgaa acgtccaatt ccaagatcaa acgacaaata accccacgaa      480
ttgggagtg ggttcgaagg cggacagcct gccatgagta cagagcagaa tccgctcgtt      540
cctatagtca tcccggtcag tacgacgtta cgctcaaagt gtggaatgaa gtgggttccaa      600
cacgattacg aaagaaaaat tcatcactgt caatgcctta tgcctgtagc tgaattcgtc      660
ggtaccccca cggaaataga agagggcaga cggatatctt ccaaaaccaa tccaccaatg      720
ccaccaacta cgtatgatat tcgatggcgg cactcccgtc accagtgaag acgaaaaccc      780
gacttgcttt acagcaaagc cggccaatac gatgtcacgc tcaaggcgat caggcttccg      840
gtgaaacggg gaagacgaaa gaaaaatata tcaactgtca gaagctccgg tccctgctcc      900
ggtagccgac ttcgaaggaa cacctcgaaa ataaagaaag gcgagacagt tactttcaaa      960
gacttgctta cgaacaatcc acttcatggc tttgggtgtt cgaaggcggc tctcctgcca     1020
ccagcacggg caaaacccgg tggtcaccta caatgaaaca ggcaagtacg atgtccagtg     1080
actgccacca acgagggcgg aagcaatgtg aagaaagcag aagactaatt gaggttatcc     1140
tcgatgacag tgtcgaggac atagtggcac agacggatc gtcattcgtc cgcaaaacgg     1200
aacgaagcag atcctcatag aagccacgct gctatcaaag cgatcgttct ctatgacatc     1260
aatggacggg tcgtctcaaa actactccga atcagctccg ctcgaccgta gatctttcca     1320
tccgcccgaa ggaatctaca ccatcaatat caaaacggaa aaatccgctc gccggaaaag     1380
atccatatcg ggtaatccga gatctgctac acaagaaaag gatgtccggg ggggcatccc     1440
ttttcttttt gtcatagcaa gctcgtggag attattcggg cgggtgtggg taaagcagat     1500
acttcttccg caatttgtgt acttgtcgag atccgattgc caagaggctc ggatctgctc     1560
ttctgtc

```

(2) INFORMATION FOR SEQ ID NO:1265

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1018 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1265

```

caattatacg caggggttatt gtatctcatg tccttcgggt agtaggcaca tatcctgcta      60
caggacgggg aaatagccga ctttctctcg ataaggctct cctttttatc ttacctttgt      120
gccgaagaac tcaatcagct attacaaatg gatattgccg tagtcggtat cggctatgtg      180
ggactggcca gtgctattgc tttgcggagt tgggagcaaa tgttcgctgc atagatactg      240
atagaataaa atcgagcagc tgaacagcgg gactatcccc atctatgagc cgggcttgaa      300
aaaatgatag ctcgcaatgt gaaagccggc agactgcgat tcgaacggag atagagcaag      360
ccgtgccgga agccgatatt gtattcatag cgtgggtaca ccggccggcg aagacggcag      420
tgccgatatg ggctatgtac tgatgctgcc cgtagtatcg gccgtgccat gagccgttat      480
attctgatcg taccaagagt accgtgccgg tgggacgcta ccgactgac aggaagggtt      540
acaggaagaa ttggacaagc gtgagggtgt gattgacttc gacatagctc taatccggag      600
tttctgaaa aaggaaatgc catcgatgac ttcatagaac cgatagagt gtcgtgggag      660
tggattcggg ccgggcgcgc gaactgtcac aagcctttat aagccgatgc tcttaaacia      720
tttccgtgtt cttttatgga cattgcttcg gctgaaatga ccaaatatgc tgccaatgcc      780
atgcccggcc tcggatcagc tttatgaatg atgtggccaa cttgtgcgaa cgggtgggag      840
agatgtttcg atggttcgtc tcggtatcgg ttccgattca cgataggcag caagtttctg      900
taccggggtt gcggatacgg aggatcttgg ttcccaagga tgtaaaaagc actgatcaga      960
accagcagaa gacaacggct tcgaatggaa gtattggaag ccgttgaacg tgtgaacg      1018

```

(2) INFORMATION FOR SEQ ID NO:1266

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 791 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...791

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1266

```

ctctagagga tccccaactt ttttcagtac acgtcagggg ttattcttta tcttgaattt      60
tgctcaaadc tcatgagaaa acagatgaaa ttgcgttccc attttccctt ttaccacctc      120
cgagtgtcaa cttttttcag tacacgtatc ttaaatgcgg taaaatctgt cacttcgata      180
aattacgagc cgaaaagctc ggattgtggt ctgtaaatcc tgagaaaacg gggcgagaat      240
tttttgcttt ggcgcgtaaa aattttacct cccgagccaa aacgcaaaaa attagcgcca      300
cgctttcatg gctgtaaaagc cggcaatttt tggagcctga acctcgtagc gggggaggga      360
gtagcgatgt gtactttcgt ggacttccga gtcaggttca ggctctatat tgagccggtt      420
gtcccggtgt atcaggatatt gttgtcttag ggtgaaaacg ccgattgcag ggcattaagt      480
cgccggctct agctgtcggc aacctatagc gaccgatgga aacctctctc cgaagtactc      540
ttgcagagta atgaataact ctctaaagcc ggctttcgac aggttttctt gcacctgagt      600
ggactatact cgtattttaga gaccattgca caaagagctg ttctttctgc tagcttggtc      660
ccggtgtggt tttgaccatt ctgcgtcgtt tgcagcctgg ggactaatat tcaaggtgaa      720
gaacacatct aaatgtcaaa aacacaagga aacttggttc gtattggtga gctgggattg      780
tgcattggtc c

```

(2) INFORMATION FOR SEQ ID NO:1267

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 323 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1267

ggaaacaaaa	cttaaagcat	ccttggntac	atcttccttt	ttgactatag	taaactctnca	60
atttgaacat	tccctccgag	gaacttttga	taatctctna	gtaagggaca	tgtacaataa	120
catacttgag	caattcccaa	aacagatctc	tngntgctct	cgtgatgata	ctacatgtgc	180
ttncctataa	gttttttata	ggcaggcatc	catttaactg	cttttntaag	ccagtattnt	240
agacgtagga	ggcattatta	agcataaaca	tacttntaac	gntcttatng	tttaccatga	300
aaganttatt	ctntacttaa	aaa				323

(2) INFORMATION FOR SEQ ID NO:1268

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1050 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1050

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1268

actctagagg	atccccggct	ccatgggggc	attgccacta	ccgtatgtcc	catgactaca	60
cccttcagtg	aggggatgcc	gagaatgctc	tccactactc	tcgtgtaatg	ccggggaata	120
ttttcaggat	cacaacgttt	ctgtccattc	cgtctggaca	ctgagggcgg	catcggcccc	180
tcggtctgct	atcagacatc	ctcgtatcga	atgtcgatac	cggcataggc	caagggtgaa	240
aagtttatga	agcaaaggcg	tcgaactggt	ctgcactgac	tttcgatgta	cgatgccacg	300
catcagatag	ttgtcgaaga	aaatacaaac	ttccggtacg	cggcatagcc	gttttgtttg	360
gctgcagcaa	tttcgatagc	ggtgatgagg	tttctttgcc	atccgtacga	agggtagcca	420
taggcagctg	tgaccctgtc	agattacggg	tttctgcaga	tcattccagca	taaagcttag	480
agcagaggcc	tgtaggccat	cgtatcagtg	ccgtgtagga	tgacaaaacc	gtcgtaggcc	540
ggtaattctc	ccgaatgggt	tcggccagcc	ttaccacaaa	atccggagga	tagcggccga	600
gtcgtatgga	ggatcaaaact	ggatggagtc	gattttgaac	cgaaattttt	cagttccggc	660
acattggttt	ccagatattt	gaagtcaaag	cttctaatac	tttcgtctcc	ggattctcaa	720
tcataccaat	tgtccccccg	tatatatgag	gagaatcgca	gaacgtcctg	aagcagattt	780
agttgcatta	tgtggtgagc	taaaacaaaac	ggtggcgggt	ttttccttcc	ggctccaaga	840
tcgtacagcc	atcggactat	ggctttggat	acggccgggt	cgaaagataa	taaaagctcg	900
ttcagagcat	gcttttacggc	cagagcaatc	gttttgaaat	gttaacacac	atataaacct	960
gatgatgctc	catccaaaat	agcttagcac	gatattgtct	gagagcgtag	agaggaaaac	1020
gatcaggaga	aaagtcaaga	ggataactct				1050

(2) INFORMATION FOR SEQ ID NO:1269

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 642 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...642
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1269

```

cgtcaatggc aggggtggcat ctacctatcg cgaagaaggc gacgagtaca tattcgcggtg      60
cgcttggccc ctgagttcag gcgatcattg agggacttga aaatatactc atttatacgc      120
ctcagggcaa aggtgttcgt ctgggagggt gggtaaaata gaagagctgt acactcctcc      180
caccattgaa cgaaagatcg tcagcgtgtc gttatcgtag cttccacggc tgtcaaagga      240
gctgcttgag cgatttggtc gaagtggcca aagaaaagat tgctcaactg gagatcccga      300
cgggattgac tacaaaatca gtggtacata cgaggaccag cagagacatt tgcagacttg      360
agcaccctta tgctgctgat cgtgatactc gttttatcgt catggcagca cagttcgaga      420
gtctcgtcga tccgtttgtg acatgttttc cataccgttt gctttcacia ggtgtcatag      480
tcggtcttat attacccaat taccactttc agcgctatgt cctttatcgg tctgattatc      540
tgatgggtat cgtgggtgaa agaaccggta ttgtgctcat cgatttacct cgtctgtgtc      600
gcgaacgccg tatgggcatt ctctctggcc gtagtacagc cg                                642

```

(2) INFORMATION FOR SEQ ID NO:1270

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1270

```

cttcagctgt ttgcgtcaca gctacaacga tttccgtata gatgcggagg tctttgtaac      60
agggttatac tggagcggag caaagtttac tacctgacac gtacatcgcg caggatgaaa      120
ggatcgctca gcgtagcgat ttcgcccgga agaacttggtc ttcattatag ctctgtccgt      180
acacgtaggg gatttgtcag gattttcagc gcgagagata acacctttag agggagcgat      240
cagcaatcct tcttttcgat gaatttggaa gaaactacct ctaccttcat cgcagtgttt      300
cagaaaacggc aagagaacgg gaaagaatgg gcaatatagg cgtcctttct ccgagatatt      360
gacaccttcc gtgaaggtag gcacctgaac tacccttttg aagtctgttc gcctgtgaac      420

```

tgaagattgt ccatacggaa tgcaccttgg acatagactg ctcagcggag agcagtcgta 480
 cttgtggggt cgaacgcgct ctgccggctg tg 512

(2) INFORMATION FOR SEQ ID NO:1271

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1063 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1063

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1271

ttcgccaccg	gctcggcgaag	cctcgatcag	gtagtcgtac	gagagaactc	accgaccttt	60
ggagcatcct	cctgttcctg	ctatccttcc	ttgtcacctc	aagaagtggc	tccatcccat	120
cctcaccgata	ctgcttgccg	gtctcggggc	ctgctgatat	acggcttctg	aaaacgagct	180
atgccataaa	tcgaatatga	cacaacccat	tcggccggct	taggatttcc	aagaagggct	240
ttatccaacc	gagatcgaca	gatggagata	ttcgttgaca	gggtacgaac	ctgcggcttt	300
tatctttaga	gcttcctaata	atcttcaaga	cggttcancc	aactctcaag	aaacgtntgt	360
tggtatgcct	tagcaattcg	cgttcggtgg	cctgcgtccg	atgctatcct	cgtacttttt	420
tatgcttctt	gctgtaattg	ctctaagaac	tcgcgacgtg	catcgaagat	ggactcaaac	480
agctcatcgg	atctgcacta	ttgacagcct	gtaaggtctt	attgccact	attccatcac	540
ctgcacacct	agtatccttt	gaggaataac	aataccatac	ttgcctgacc	ccaaacccaa	600
tcgacaagga	tattagccac	cttttgagac	tcgattagtc	agctttccaa	cgatcccaat	660
aaaatggttt	caagactcga	ttcaggcgtc	atcatcggtt	agcaacttga	gatcctcaac	720
atcgatgtct	ccatcccgtc	tttgtcatag	ccgactcttt	tccaagtgcg	tattgtttaca	780
ccttgtttgt	tgccctcctc	gcacgggcag	gatcatggac	aaaaccacct	tccatttcaa	840
tatatatggg	agtaataact	taacatttgc	catctttctt	cactttcttg	agttcaacat	900
aaatcaactt	ccaaaagcca	ttcngcatcg	tttacaaaaa	gctcgttcca	cagtccttcc	960
gtcattcctt	cgactgcatg	accttcggtt	taagcctatc	ctatccataa	ggatctattt	1020
ctctcttaag	agagtgatta	tctatgtaca	aagataagtg	ttt		1063

(2) INFORMATION FOR SEQ ID NO:1272

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 724 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1272

ccccgggtgc	ggcacaagca	tttctctgcc	aagtctacct	cggccaaagc	cgccctacgag	60
agcaagacca	agacttgctg	aagaagcttg	cacaactttg	gcagagaatg	aagactttgc	120
acctgaagat	gctctacagc	tcgcggctgg	aatccctatg	accagaatgc	cgtcagctca	180
ttcttcgacc	ctgaatgatg	tttggcctcg	cagatggctt	cgacatcggt	attggcaatc	240
ccccgatgta	caactacaga	ataatggggg	agaattaacc	aagctctatc	aaggtgtgac	300
ttcaagactt	ttgctcgtag	tggagatgta	tattgcctat	tctcgagcga	ggctggcaac	360
tactcaaaga	gggagggcac	ctctgctaca	tccctccaac	aaatggatgc	gtgcagggtg	420
tggagaaaag	acaaggctat	tttcgcctcc	aagactaacc	ccaagctact	tgtagacttc	480
gctggagtta	ggtctttgag	agtgcctacg	tcgataccaa	catcctactc	ttcgccaaga	540
ggccaacgca	ggacagactc	aagcgggtct	cctgaataag	aatgtccaat	tggcggtagt	600
gaattgtgcg	aatatatatt	acagcatgca	acagccttgc	tttcatctcc	tccgagagct	660
gggtcatcct	atccctctat	gagcagggtat	caagcgaaaa	atagaagccg	tcggcaaacc	720
tctc						724

(2) INFORMATION FOR SEQ ID NO:1273

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1273

aaggggaatac	ctaatacatta	cttcacacca	tagtgcaaac	ttcgtagtag	nctttcaent	60
tttcgacctg	attgcctngg	atgattatth	ctccgtcttg	gctgctcttc	ccactccgca	120
tcgctgcttg	agcaggcgcg	acagatcgtc	agatcgctcg	cggaaccgac	gtgtccgctc	180
acaaggggtga	cctcttgccc	cgacgctgct	tccgatccag	cgtagatagc	agacgttggt	240
tctccgagga	agcgtctcag	ctacctcttc	gctatcttca	tgttcgtatt	ggaatcgggg	300
ttcgtactgt	acatgacccc	cagtctgttc	ttccagtcac	tcaattttat	attctccata	360
aataaaaagct	gccgaggaga	taccacaacc	tcacgacagc	ctttgttccct	aatcaaatac	420
cgcgcgctct	agtgcggatt	attcttttgg	gccgacttgg	taatgcgctt	gcgcggctca	480
ggcatggctc	gacacgaacg	atatgctcat	tcgcaccctc	ccacatgate	tccttttcac	540
tgtgcgcaga	taagctatct	catcgccctt	tttcaccaca	gtgccttggc	tactacctcc	600
gtaatacggc	cggtgaatgt	accaatagac	tttctcgtat	agccaaattg	gttttcgatg	660
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acggctcgct	atggcaagct	cgaatagctc	tcgtcgctcg	ggccatactc	ccaaccgttc	960
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aaaaaaagat	tacctttgca	gctgttacgg	atggatgggg	aggcgacccg	atcaaggttc	3060
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tgaacttctc	ttcattcggg	gocgtgccat	tctcaatctt	cgccaagctc	tctccagcaa	3960
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cctatcacca	tccgtctcgt	agcccgatc	ccgggagaga	gggccaagat	ggcgtagagt	4320
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gccctcttca	tccagcggga	ctcagccctg	cacgtatatc	ttcgattcgc	ctgctcgaag	4500
cagagcatag	gccgaagtat	tcctgcgccc	cgaagaagtg	cctttggcca	tcggaaaaat	4560
gcctcgaata	tcaagctggc	atcgggctgc	acgggttatc	agatcgagt	ttccgtgaca	4620
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gatcatcgac	ctgttcaaga	atatggttgc	aatacggcca	agagcgtgct	cagcaagaac	4740
agagaagatc	tgacaaagag	acggatttgg	aagactccac	catagactat	gtactcggag	4800
tctgagtgcc	gaatttgccg	atgaggatca	ggtgactgat	aatcaaagta	cgattcggat	4860
gattttcga	atttctctgc	cgaagacgat	ctgaagcgaag	gtaataagaa	gaacaaaagc	4920
agttctcctc	ccatccctca	tcttatagtc	aatcctcaca	aagggtgcagc	ataaatcaca	4980
gaagaagaaa	aggttagttg	tcaatnaaan	aattcagctt	agctaaagag	ttaaatgtag	5040
gagtaggtcc	ctcgccggct	ttcttcgga				5069

(2) INFORMATION FOR SEQ ID NO:1274

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1274

ccagacagca	tttcgatcag	ctcattgtcg	atcttcgatg	ccggcagtag	atcgatcatct	60
ttttgatcaa	tgtatcggcc	acttgaggta	gcagttcggt	gaggtcacga	ccaattccat	120
ttcacccctct	ttccacttat	gaggctgacg	gatgcgcgaa	tgaggagata	cagccccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtatttcg	cccgtgccgg	240
acagacctct	aacgtaatat	ttgagtacgg	attattcgag	cgagagattc	cctgaaagcc	300
ttggtaacaa	taccggccaa	aaccaaattt	ttccccacca	aggatcggat	cgggtcaaatac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1275

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1275

agtatcagat	tgacgccctt	ttcggctgct	ttcttcacga	tgtcgcgagc	aaatccagct	60
tgtcgtcttc	cacgatggag	aggcctatcc	gaccgcctcc	gcttttgtga	aagtataggt	120
cattccgccg	gtcaggatca	ggttatcaat	ttgttgagta	ggttctcgat	gatttctatc	180
ttggtcgata	ccttgggcct	cccatgatgg	cggtgaacgg	ccgcttgatg	tcgtgcagca	240
ctcttctacg	gcttttactt	ctttctccat	cagatagccg	aacattttgt	ggtccggctg	300
aagtagtcag	cgatcagtcg	tgtggaagca	tgtgcccgat	gcgtgtgccg	aaagcatcgt	360
tcacgtagca	gtcggccatg	gaagccagct	ttgcgtaaac	tctttctgag	cagccttgac	420
ggctttcttc	gctgcggctt	ttcttcgtcc	gaagcatcgt	cggagagtcc	gcgcggctta	480
ccttctctct	ggcatagaag	cggagatatt	cgagcagcag	cacttggccg	gctttgagct	540
ggccgctttg	tccatggcat	cggctccgat	gcagtcacgc	gcaaagagac	atccacgccg	600
agcagttcgg	atacgtgcgg	caggatatgc	cggaggggaa	ctccggtgct	acgccttttg	660
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ggggagggct	gcgcgatgcg	ggtgtcgtcg	gtgatcttaa	agttgtcatc	gaggggaacg	780
ttgaatcgac	gcgcacgaag	gctttcttgc	cggcgaaaatt	gaattgttct	atctcattgt	840
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ttatatagaa	gagtagttgc	tttgcccctt	tatcgccctt	cggaatccca	tcgtttcggt	960
atcgatcccc	gatggaaacg	cgttattggg	tccatgaagaa	tttatatatc	tttgctcggt	1020
ctcagaggta	cccgaattccg	tcttacgaga	cgggtttttt	gtagttgtcg	gggacgatgg	1080
acgagacttg	caacagagaa	aacagaacca	acttaattat	tcaggatatga	gcaaatttaga	1140
tttgacaaaag	tatggcattc	tcaatgccac	tgagatatcc	acaacccatc	ttacagagttc	1200
ctttttgaag	aagagaccaa	agccgtctcg	aaggctttga	gaaaggacag	cttaccgaac	1260

tgaggagcagt	caattgatga	ccggtgtcta	tacgggtcgt	tcgcccagg	ataagttctt	1320
cgtatggacg	atacaacca	aaacaccatc	tggtggacgt	cggacgaata	cagaacgaca	1380
acaaaccggt	gactccggag	gcgtggaaga	gtatcaaaaa	gtggccgtgg	agcagctctc	1440
cggcaagcgt	cttttcgtcg	tggaacagtt	tcgggcgcca	acgaaagctc	tcggttgaaa	1500
atccgcttta	tcatggaggg	gcctggcagg	cccacttcgt	caagaatatg	tttatccgcc	1560
ccacggaaa	gagctggcca	actacggcga	gcccgaactc	gtggtgatga	ctgcttcaaa	1620
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aatacgagca	tggcgagaag	gagacggcta	tcttcttcgg	tctgtccggg	acgggcaaga	1860
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gacggtatct	tcaacttcga	aggcggatgc	tacgccaagg	gatcaacctg	agccgcgaga	1980
acgaaccgga	catctacaat	gccattcgtg	caatgcgctg	ctggagaacg	tgaccgtgga	2040
tgctgcccgt	aagatcgatt	cgggtgacaaa	tccgtgacgg	agaatactcg	cgtctcttat	2100
ccgatctcca	catcgagaac	atcgtgaagc	ccgtgtccaa	agccggccat	gccaagaggt	2160
gatcttctc	tcggccgatg	ctttcggcgt	attgcctccc	gtttcactct	gactccggag	2220
cagaccaagt	attacttcct	ctcgggcttt	accgcaagct	ggccggtacc	gagcgtggca	2280
tcacggagcc	tacgcctacg	ttcccggctg	cttcggagcg	gctttcctct	cgcttcatcc	2340
tacgaagtat	gcgaggagct	ggtgaagaaa	atggagatgg	tgaggagctac	ggcttacctc	2400
gcaatacggg	ttggaacggg	acgggcaagc	gcctctctat	caaggatacg	gtggtatcat	2460
cgatgccatc	ctcgacggct	ccatcgacaa	ggctccgaca	aggctattcc	tttcttcgac	2520
ttcaagggtgc						2530

(2) INFORMATION FOR SEQ ID NO:1276

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2518 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2518

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1276

cgatgtacga	gcgtatgcag	tttatgaagt	actttgccaa	taaagataat	gatccctcca	60
cgggatatgct	ttgtgtgaac	aaagcatcgt	gtgtaaacaa	tanaaaagaa	gagccaatga	120
agaaatcaag	tgtagtagcc	tcagtttgcc	cgtggctctc	gtgttcgccg	gttgccggact	180
gaacaatatg	gcaaaagcgg	ccttatcggc	gccggagtag	gaggtgccat	tggtgccgga	240
gtaggaacgt	agccggaaa	acggctgtcg	gtgccatcgt	cggtagtcca	gtcgtggagc	300
agccgggtgct	ctcatcgga	agaagatgga	caagcagaaa	aaaaactgga	ggccgcagta	360
cccgatgcta	cgattcagac	agtaaatgac	gggaggctat	tctggttact	ttcgatagcg	420
gtatcctctt	tcgcgacgaac	tcagcactct	gagtcccaac	tcacgcactg	cgctgacgaa	480
gtttgctgca	acatgaacaa	aaaccccgac	acggatatct	gtatcgtagg	ccatacgga	540
ataccggctc	cgacaagatc	aacgatcctc	tgtctgagag	acgtgcagca	gcgtatatct	600
tttctggaat	tctcagggtg	tgagtatgtc	gcgcagtgcg	ccgaaggggc	tgaggagccat	660
gaaccggttg	cagacaatag	cacagtgcgc	gacgttcggc	caaccgccgt	gtggagggtt	720
atatcttgcc	gaatgcaaga	tgatcgaaca	agcacagcaa	ggtacgctga	agtaagcctt	780
agctacggat	actaaaaagc	ctccgactca	ccttggttagg	gagagtcgga	ggcttttcgt	840
tttgggataa	gatcctaata	tgttgtagt	tgctccgaatc	aatccgttcc	ggcatcacca	900
taagttgcgt	atcgggatga	tatttatgca	gtagaaacgg	agataatcaa	gggtgttagc	960
aataatacgg	tcgtcttcgg	aggataaaga	ttgtagacaa	tggaattcgac	cggaataacct	1020
ctgtgtcggg	caattccaaa	ttgagttagc	tggtggtgat	actccccagt	cggccactgt	1080
cacgagtgcg	ataggataat	ctctgtcagc	tataaaatca	gctgtaaata	gtccttggtg	1140
atgggcacca	tcagtcggcc	ggctccttcc	agaagggtcg	atcgtagcca	cgagagagga	1200
gagtttcagt	agcttgggtc	attattttgca	gtccaccctt	ttaccatcta	tctcggctgc	1260

aaagtgagga	gaagcggata	actgaaaata	taggggcaag	taagtcccaa	accatcttct	1320
tccttgtagg	gtatccgggtc	agacgacggt	gtgcttctat	atcctccgaa	gccctacaca	1380
tcccgtctgt	acgagctttt	gggtgatgac	cttttgcctt	gctcggagag	cttgtcgaaa	1440
agaaaagccg	tggcataggt	tttcccagata	tcgtgtctat	tccgggttaca	aacaggactt	1500
tagaggggaat	gatgggcata	cagtacggac	gaaagctgaa	aatttttttac	cgctgttcga	1560
tctgatttga	actctggcaa	tcaaagtata	ggtagagtcc	gatgcagata	caagcggagc	1620
cttagtatat	tgtgacggat	gagacccttt	tgatagagca	attcctgatt	ccggcgggat	1680
taccatcgac	aaacatcagg	tagtacattc	cttccgtcgt	tggtggatgg	tttcggcttc	1740
ttcaaatcgg	ttttccaaac	acagtgtatc	aaacgactga	aaagctccgg	ataggcattt	1800
ccgatcacgg	aaaaactccc	tcggctcctt	cctttataaa	ggaaagggag	agatgatcgt	1860
cgctgatagg	acaatgaaaag	gatcgggttt	ttccagcact	attgcacgca	ctgatccaca	1920
ttgcccgaag	cttctttgat	gccgatgata	ttcggacagt	tgtagccaat	ctgagagtgg	1980
tttcggactt	aatattcaca	cccgttcgcc	ggggacattg	tagaggatga	tggacgtatc	2040
agtagattcg	gccaaagtct	ataatgtcta	taaatgcctt	cttgctgagg	tttgttgtag	2100
taaggagaac	ggataagatg	gcattctacac	cggtcttggc	catgggcttg	gaatccattg	2160
acgaggcggt	cggtgtagtt	gcctccggct	ccaacgatga	tcggaaccgt	cctgccaccg	2220
cctctctgac	tgtttgcaat	atcgagagc	gctcgcatcc	tcgatggtgg	gcgattcacc	2280
cgttgtgcca	agtactacga	tgtgttggca	cctcccgtta	cctgataatc	cgctaaaagt	2340
cgaagcgatt	cggttctacc	ccgccctttt	cgtcgaangg	ggtaatcagg	gcaacccccca	2400
tcctcgcaac	tgtgctctgt	caattcgtat	tctattttag	aaacaaaagt	aaaataatgg	2460
gagcaatgga	nttgaagtgg	gcattttacaa	ttcggagaaac	tgcagaagtc	ggaaaaaac	2518

(2) INFORMATION FOR SEQ ID NO:1277

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1277

ttccgctaaa	agattctatc	aaggaaagag	ccttgtaatg	ataatccgag	cttctgccaa	60
agcacggata	cgacggctat	ccgttccgag	atgattcctg	cttgtgcggc	tacgatgggtg	120
tcccttagat	tcaatgcagc	gttcaacctt	tttggtgata	tagcatcgca	tctgtgtatt	180
gggacatatt	acgcatcggt	tgccgacctc	gatcgcgaa	aacatttgtc	ccacaagggt	240
cttgtctgta	cgctgttctc	gtaaagctgt	ttaacagaat	cagtggggag	ttcttttctg	300
acagcaatgc	agtaatacgc	tttttctctc	gggcgatttc	agtacagagt	gttttttctt	360
ttttccacat	ccgacaaaaa	tcgacaatat	gataataata	atgggaaaag	tttcttcatt	420
tggcttttcta	tatgcaagtc	attccgggtg	aaaactaatc	aaacatggat	aatctgacac	480
ataaatatgg	ttgtgaaaca	atattgagag	gagtgcgaag	cgtccatttg	aattatttct	540
atatttgcgg	agtcgggtgc	ggtaaaaaag	atgaataaac	tttttcttgt	cttcggcata	600
aagacaaact	aaaaaagaaa	acagagaata	gaagtaggga	agctcatggc	tttcgtcact	660
tc						662

(2) INFORMATION FOR SEQ ID NO:1278

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...690
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1278

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ggccggtcct gtctgttggg cgatggccgg cataccgcac aggatgagga tgccaatgat      60
aatagcgatt tgttcatacg ttggtcgggt atcgaatcaa tgagtgagat gaggacaaaa      120
gagccaatgg gcgaatatgc cggcgacagt ccgccgatcg catgtgctcc gatcgctgt      180
gtgatgaggg ggccgtcttg agactgtcga gcatggccgt gtgcgtactg aggaagccgc      240
tccagacata cccatggcgg tgaaaacggc tactgcattg ccgtccagga tacctgcgcc      300
gagaagttag gtaccagtcg gagggctgca ccgactgctc cgacgcggtg atcgggaagg      360
cgatgaggcg ggaatcgggtg aagccgaaga gcagcggaag aggaagtcca ccttgtcggc      420
aaggccggcg agcaggccga cccttcgtat gccttgccgg cgaagggtgc gtcgggtccg      480
gcagggtccg ggtgagcatc ataacggccg tactgatgat gagtacgccg gggatgatgc      540
gataccgagg tctacaccgg tcttgccggc gtccagtacg gcattgagat acgcaggaaa      600
aggttctcct tatgctcttt cgtttctcg tgctgcactc ctccacattg accggactgt      660
ccatttcgcg atagcggcgg agcgtgtccg

```

(2) INFORMATION FOR SEQ ID NO:1279

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 525 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...525
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1279

```

cggattttcc ggaattgctg tcagaagtcg agacgatagt ctactccgga ctcgaaatcaa      60
tatcgactac ttcatacaag aggtcatgga cgaggatctt tggaagatat attcgagtat      120
ttcaaagaat ccacgacaga ctctttgagg aggctatgca agaactcggg aaggactatt      180
cggaggaaga gattcgttgg tacggatcaa gttcttatcc gaaatggcaa actaatgcat      240
cagttatgat gctataatac ggtacgaaag atgaaaaaga atggaatgcg catcgcataa      300
tcatgttgtc gttgctctac tgggcactcc cctcaatggg acaaagaacc gtggatcgac      360
gaagtcgtat ggatggtggg gagacgaacc gatctgcgct cagacataga ggctaccaa      420
acgttttttg ctacgttcgg gcgccctctt gagggaatgc agactgctat attcctgagc      480
agattgccgt caaaagcttt ttctcaatca agccaagatg gacag

```

(2) INFORMATION FOR SEQ ID NO:1280

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 375 base pairs
(B) TYPE: nucleic acid

- (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...375
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1280

catgaaacgc	tctctaaaaag	gagaaataag	cgtgggcgaa	gggtacgaaa	caacaaatgc	60
cgatgctgat	ctttttcagt	cggacagtcg	gggcaaaggc	aaaggagAAC	ggaaagcaag	120
atgatcaaat	tcatgagtat	cgccagcgca	gtagtggcaa	ctgctactat	ctctccaatg	180
gcaatcaggc	actgctatcg	atgcagycat	tccattaaga	agcatttcca	aagccctcaa	240
agatctcagc	tccccatcga	aggtaatgtc	gtaggtgtat	tggtcacaca	tgacatgccg	300
accacattcg	aactatcggc	tgcttgggag	aaaaattcca	cctcccgtat	ttgctacgga	360
aagagtacat	aacgg					375

(2) INFORMATION FOR SEQ ID NO:1281

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 510 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...510
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1281

atgccattcg	ggcgatgtaa	tatggggagaa	ctggctctttg	ccacagaggc	ttgcgcaagg	60
caatggaact	acgtcccagag	tttgagaccc	gttattattg	actgaagcat	tgcttcgacg	120
ccatctcacg	gaagaagcgt	tggctcaatg	aatttactcc	ttgaggaagt	tccgatgcat	180
acagcaaccc	tgctcaccgt	gctaagttga	ggttagaaca	aaatgatccg	tcccagagcac	240
ttgagactgt	ggtagccggt	tcgaatctac	atccgaattg	gaggaacaag	ctctttcctc	300
tattacggag	cctccgccat	gaaggacatg	aaaaacctca	agaatgccct	ttgcctgctc	360
aaacaggcca	tcgaaaaaaa	atgatgcctt	catccggcca	gactccttcg	agcgcgcata	420
ctcattgact	tggagcgcta	taagaagcca	cccaggattt	ggattgggtg	gcagcattcc	480
gatccggaag	ggaacaggtg	cctatgctcc				510

(2) INFORMATION FOR SEQ ID NO:1282

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 988 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...988
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1282

gaaaactatc	ccgaggacaa	gaccggaaga	gaatggcagc	cgtgaaacat	ccggaaagat	60
gagtctgccg	gcgtacatac	gattactttc	gctcgcgact	gtacatagag	aaggaggatt	120
tcatggagga	tgctcccaag	taatattccg	aatgacgccc	gggcaggaag	tacgcttgaa	180
gagttcttac	atagtcgttg	tacgggatgc	aaaaaggacg	aggacggaaa	cgtcgtggaa	240
gtatagccga	atacgatccg	ctgacgctgt	ccggtatgcc	tgagagcaac	cgcaagtaaa	300
gggtaccatc	cattgggtat	cggcacagca	cagtctgccg	gcaaggtagc	actgtacgat	360
cgtctcttca	ctgacgaaaa	cccgtcggac	ataaagacaa	gacactggcc	gagatgctga	420
acccggattc	tctcaagggtg	caaaaaactg	ccgagtagag	cctttcctcg	cggatgccgc	480
tccgggatcg	acttccagtt	ccagcgcata	ggttacttca	cggtaggatcc	ggatagtcgc	540
cgggggcatt	ggttttcaac	cgcacggttt	cgtcgaaaga	ttcttggcga	aagcccaaaa	600
gaacgcataa	aggacattat	ttatctcact	cgcaccttgg	gatttattca	gtgggtgcctc	660
gcgcacctga	actattggac	tatcattttt	tgatggccat	cgagagttag	tttattccgt	720
tcccgtcaga	gattatgtgc	ccccgggtgc	atggatggct	gccacggggc	aaaatggact	780
gaacttttcc	tcgttatcct	gttcgcaccc	atcggtagccg	gaataggagc	tcggtaaaact	840
atatactgtc	tctattgtct	ggtcgcaceta	tcgtctacgc	gttgccaaca	gtaagctcgg	900
gcatttgtgt	ctgatcaacg	aagaagaaag	tcgatatgca	gagcgatatt	tcgacaagaa	960
cggagctgtc	tccacactgg	aggacggt				988

(2) INFORMATION FOR SEQ ID NO:1283

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1103 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1103
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1283

cggccaaggt	tttggaaaga	gaacgaatca	cccctaccct	acaatcgatc	gagatacggg	60
catacgcatac	cgcaattcca	agttgcccga	tccggccaaa	taggcaatgc	gggcagcttc	120
ttcgtaaatc	cggtgggtatc	cgccgagaat	tcaataccct	gcaaaccgaa	tatccctcca	180
taccaagcta	tcctcaccgg	atggcagcgt	gaaagtcccg	gccggatggc	tgatcgagca	240
atgcgataca	aagggcacgc	ctccgggtgca	gtaggtgtct	atgagcatca	ggcttgggtct	300
tggtgaacta	tggcggagct	acgggcactc	aggtgggagc	tttgcagaag	agatcatagg	360
caatgtccga	cagaaattcg	gaatcactct	cctccggagg	tcaaatacat	tttataatat	420
caagttagcaa	gcctttttgcc	ccatgcgttg	catattatta	ggctcaggca	ccagcaccgg	480
cgtcccccga	tcggctgtca	ttgtagggtg	tgctcgtagcg	aagacaggca	tgacaagcga	540
cccgtacttc	tcttcttata	atcacgggatg	caggggaaacg	aatcctcacg	actgcagccc	600

ggacttttcgc	caacaagctc	tgtttgccgg	catcgatcgc	tcgatgccgt	tttgctgact	660
cacgaacatt	ttgaccacgt	cggtggctcg	acgatctgcg	caccatctgt	tggcatcgcg	720
aacttgctgt	ctatgcgaac	agaatgtatt	ggactccata	cgcgacaggc	tgcactatgt	780
attcgcaaaa	atccttatcc	gggcactcct	ctactgaaac	tatgcgaagt	aaacccgata	840
tgccgtttca	agtggcagac	ctgacggtag	agcctcttcg	aaaatgcatg	gcaggttgcc	900
gatactcgga	tataaaatag	gagagatggc	ttccttaccg	atatgaagga	tatagcagca	960
gaagaaatcg	agtgcctgaa	agctgtcgac	ttctttttat	caacgggctt	cgctacccga	1020
agggaacatc	ttcgaccagc	accatagagc	aggctattga	cacaatagga	caaatcggaa	1080
tccggaaagg	tgtcctgata	acc				1103

(2) INFORMATION FOR SEQ ID NO:1284

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 555 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...555
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1284

ccggccttga	tcgtcgaatc	catgcgtcat	ctcgtgtccg	atcactacgc	gataccgcca	60
taattgacag	catcgtctgc	atccatgttg	aagaaagggg	ttggaggatg	gctgcaggaa	120
aacaaatttc	gtttgtggtc	ggattgtgta	ggcattgaca	tcctgaggat	tcatacagcca	180
acgctcgcga	tctacatctt	gccgaggtca	gccatattgt	cgtcatgcat	ccatttgctg	240
gcgcgttgat	atcggcataa	tagctgtctc	ccttgatttc	catcttgga	t'agttttcca	300
cttgtcggga	taacccgatc	ttgatgatga	aggaattgag	ttttcctgag	gtttcatctt	360
cgtgggagtc	gccatcccat	gtaagcatgt	tgtacgctct	ccgagggccg	tttgcagggt	420
cttgacgagt	ttgagcatgc	gtcttttgct	tcgggtgggg	aaagtattgc	tttacataaa	480
cttcgcccag	gcttcgccc	gaaagctgct	taccatacct	acggaacggt	tccagcgaga	540
tgctttcggg	ggttc					555

(2) INFORMATION FOR SEQ ID NO:1285

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 529 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...529
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1285

cgagcctctg	cctgcctcta	ttctggcttt	gcccgcacaa	cgcggcgtga	agacaaagta	60
attaccttcc	tgggacgaat	cacgatgcag	aaaggcccga	atacttcgtc	gaagcagcgg	120
ccaaagtact	cgaacgcaca	tccgacgacg	cttcgtaatg	gccggaaacg	gcgacatgat	180
ggacgccatg	atcaggtggc	tgcccgcacac	aagatagccg	accgcttcca	cttcacagga	240
tttataaagg	cgaacaggtg	tacgaggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtatccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	cccctccatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	gactattggg	420
acatcgatgc	catggcagac	gcatgcatgc	gcttatagct	tatccggaac	tgcatacttt	480
cttgcgggac	aggggtctccg	agaggtgaac	aacatcaagt	gggagactg		529

(2) INFORMATION FOR SEQ ID NO:1286

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1286

tctanaggat	ccccgggatc	attccgcgaag	gggatgggca	aacactatcc	tgagtgtctca	60
gaccaatgga	aagtactatc	agcagtatag	tgtcacatta	tggatccatg	gtttgggggc	120
aagcggcccc	gatatgttca	gcttcaggca	ttctattcca	agactacggc	gattgactcc	180
aagttctaca	atagcatgcc	ggcaactact	ataatgccta	ctataatagc	tactacaaca	240
actatatagt	tattacaacg	gtatgtcgaa	ctataccggc	gacctctata	ctcagccagc	300
gatccccgat	cgttcgcttc	agatgttagg	tacttcgata	ggtagcgtaa	agcgtttgac	360
ttggcgggac	aattgggttc	agattttata	tttctgaact	acacctacta	tagactgcga	420
aattggagct	acaatacctt	caaaatttcc	atcatggctc	gctaatagatc	tcaacttgga	480
gcctgcgtct	tctcgtactt	ccatcgataa	tcctatttat	accagagccg	gatcggatta	540
tggttttctg	gtgctgctac	tcttccttat	tctttgtggg	acaatcatac	tatgccagcc	600
agaacttc						608

(2) INFORMATION FOR SEQ ID NO:1287

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1287

```

ctccttccag tcctgatctt tgatgaaacc cagacgctca agctgtttgg gtaataagcg      60
tagttataaa tggtagccat cgtacccagc tggtcgaacc ttcgataagc atcccttcgt      120
ggtccatatac ggtgaaaccc attggccttg cagcatatcc atccccttgg agcgtgccca      180
ttcggatacg gcatggaaag ggcatctacg acttcattgt cgttgatgaa atcgacgaac      240
ccgaacgagc gttgttctga ttccaagttt cattggcacg gtgattgac atacggcgat      300
gcgtcccacg atccgccctt cacgataagc caagaaatag atgcttcgca gaactcaaaa      360
gccggattgc ggtctttgtc caaggtcac attcacatc gatcagcccc ggcacatggt      420
agggattatt tctatagaga ttatattgaa ctgaacgaat ttcttcagct cggctttgtc      480
caatacttct ttatttctac agccataaaa ctcgtattta gtttacctaa gtagtcaaag      540
ttacaccgga ttttggaact ttcacgcaca aatataactg aaatagttat cattttattgg      600
ataaaatctg catctactgg

```

(2) INFORMATION FOR SEQ ID NO:1288

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1288

```

ggttcaaact ggccaatatg tacgtacagg cgggagagat agacaaggca tatacatata      60
caaccgtatg gaggcacaaa atgctgtcaa tgcagcagtg cctccaacta tgctgagatt      120
cgggcacgct tctacctgat gaccggtaga ccaacaaggc tctgaacgaa cttcgccgtc      180
tatgcaatcg attcccgaag tgaatgagtt taggctgaag tatgccggca ctctgctcga      240
cagtggaagt acgacgaagc ctacgagcaa ctgcaactga tagctcggac ggatcgacaa      300
gtggccttga tcattttgct atggccagct attacttggg aacaacgaaa aagaagctgc      360
catcaacgaa atgatcaaag tagcccgtg acaggggatg tggcaccgg agcagaaact      420
accgatcat cctgcgcttt acgggtaccg acacagacga agagggatgc accgaaaaaa      480
ggagtataat tctgcttga aaagataact gccagccatc cacttgaggt gggatgcacc      540
cttttctatg ccgagctc

```

(2) INFORMATION FOR SEQ ID NO:1289

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1289

cccagcatga	agaccataat	cttggccatg	ctggcgcgta	tcgatcgcag	agcatatcgc	60
ctgccgagac	gaggttggtc	aggctcagga	tacggaagtc	ctcagcagtc	gaaggatgcg	120
gaagaccatc	agcacctgtg	ctccgcttag	acaagggtta	tataggaggg	aagtatggag	180
atgaggtcta	tgatgcgtaa	aaggaaagga	tgtaccgcca	cggtttatga	aggcagtaga	240
tccgcggatg	tattcgatgg	tgaatacaat	ggtgataacc	cactcgcacc	aatgaaaaaa	300
ttccctcgtg	ctatgggaca	ggccttacgg	tactttctgc	tgaacgacaa	tgacgctcaa	360
gaaaggatga	ggcatagcag	gagaatttcg	aaaagcgttc	c		401

(2) INFORMATION FOR SEQ ID NO:1290

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1290

gacgcaattc	ttccaaagca	tcggccttcag	ccataaggct	attttctctgg	cctaacgcgc	60
cagatcatct	tcctgattcc	ctgtttgctg	attatccccg	attcatgggg	ttggacggcg	120
tgtggtggag	tctgccgatc	agcgatcggc	ctcggctcgtt	ttgtcttttg	tgctaattac	180
catacagatg	aagcattcaa	tcaatcgaaa	aaaactactt	tcgcggagta	attgccttac	240
aaaacgaatc	cttttcatga	ctcagataat	cttaccggaa	cgatgaaagt	attttcgaag	300
cctttctcct	acaatatctc	ctgaccctct	acatcgcata	ccgggaggac	aggccctacc	360
gcaaaaagagc	ctttggcgca	aaggttttca	cctctgatgg	gtgtagtatt	caccctgtat	420
ctaatagggt	ttgccggcaa	cgggttttgc	ccgatgccgt	gatgagctgc	attatgtctg	480
tcacaggctt	tggtttgtca	tgtccattta	tgccatgttt	gccatggtga	tcgtagagat	540
gcccggtgctg	tggacaagcg	tttcctgcac	agattcgaca	ggctgtccaa	agagtgcagg	600
ctcgcacccg	attggggctg	ttcgtttctca	taggttttcc	tcggcctttac	tcgtgataca	660
tggactgaat	atcgtgcgct	atcccgtgta	aagcatatgg	acattcgtct	ggacagacct	720
gccatagatg	gaaggagtcc	atgaaagtag	ccctgctcac	ggatattcat	attagcgaaa	780
cggtagcgc						789

(2) INFORMATION FOR SEQ ID NO:1291

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8947 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...8947

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1291

aggatccccg	ggcacaaatca	ttaaaaagaat	cctgcacaaa	cgacttgccg	aaacaaaatcg	60
ctcatgcagg	atgcaactttt	tccctatcga	cctctctcta	gggaacgata	actttggctg	120
tgctgtcacc	ggctcgtaca	acgtataacc	ggatgcaact	gcaatgtcat	gatctgcaag	180
cacggcagca	ttgtaatccg	atgtccttgc	atatcgtaca	cctgaacaga	tgtgcccgcg	240
ggagccccgc	aatgaatatc	cgaccggcag	tagcccaa	acggatctca	tgggaatggg	300
agcggccaga	gaggttatta	ccggtttgtt	gtctttgagg	tacgccaacc	gttgtttgcg	360
tcgtttgcct	gaagccaggg	agcaggattt	tgtctgcatt	gagcttgcca	gccatatcgg	420
cagtcttcat	tgccgcttcc	gcataacctgc	gatggcaggt	atttcgacgc	ccgtttccta	480
tgccgaccat	cccggttttt	gttcgtttgt	gtagaagcaa	ccgtcgtatt	tgcagttcag	540
gattctatctg	ccgtcatacc	gacaaaagca	ccgggatttt	ttcctccctt	actttggctg	600
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gtagactcgg	ttccgggaag	aaagcaaaagt	ttatgccgac	aaatccaccg	atcaacccaa	780
cgtcgcgatt	atcttgctgt	ccgttacgaa	gcaattcttt	acttcgcaca	gatgtatgcc	840
tgggatatga	aagcaccgct	ttggctctgg	ctatagactt	cccacgagtg	gcagagcaat	900
tttctatctt	ggattcatcc	aaaaggcctc	caccaagac	cctgcaccac	tgcctccgaa	960
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cacaagtggc	gaagccatca	tcatcaaagg	ggcgcgctca	ataatctgaa	gaatatatcg	5760
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ccgacaagcg	gagaggggtg	aagaaacata	cggtggccga	tctggtcgct	tacgttgccg	6120
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gcggattcgg	cgagacagct	tttttcgaag	gaaacggggc	gtgcctgctg	cgcatcgaag	6420
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gcgaagggtt	cggaagggtg	atggggctga	tgaggatctg	gtggatccga	acaagtctct	6600
ctctgtctat	aaagatgtgt	agcttgctgg	ataggggcca	agtcgcagat	gtggaaggac	6660
tattcatcca	aaagagtgtg	ccactgggtt	ttcccgtaca	caagccctac	aaaagctatc	6720
cgatatcgaa	cgcgatatgc	tgtggcgtgg	tgtaccacag	gggaaccgga	ttaccggaat	6780
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tagaggagac	gtcggcattt	ttcgaggggc	tacagctatc	ggaagacatc	tacatatatag	7020
cagacggctg	ctggaggaga	taggcaagcg	gtacggttcc	tgctcgaagt	gggggtgggg	7080
tatctgacac	ttgaccgcct	gtccatacgc	tctcgggtgg	agagagccag	cgcatcagtc	7140
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cggtctgcatc	agcgagatac	gcatcggctt	atcgggtgtc	tgaagcgact	gccgatctgg	7260
gcaataccgt	tgtagtgcgtc	gagcatgacg	aggagacaat	cggctcagctg	attatatcat	7320
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cgcatagaca	aggatactcg	ggctatacgg	cggcttatct	gacgggacga	gagaagatcg	7440
aactgccagc	ctgcgtcgtc	catggaaactc	atatatcgaa	gttggggaag	cctcgaacac	7500
aatctgaaaag	gggtgaatgt	ccgattccca	ctgcacgtgc	tcacgggggtg	accggtgtga	7560
gcggatcggg	aaagagtacc	ttggtgcgcg	atctttctac	gaaggagtaa	aaaggattct	7620

cgaaggagggc	agcacacaag	ggttgcctgc	gagggcattg	tcggggacat	caagtctgtc	7680
cgagacattc	agtcgtggat	cagaacaatt	tcgggtcgag	cacccgctcc	aaccgggtca	7740
cgacataggt	gcttacgatg	atattcgcaa	gctctacagt	gcattgccac	ttccaaacag	7800
atgggatacc	agccctatct	cttcagtttc	aataagggaag	aggccgctgc	gaggtctgca	7860
aaggagaggg	cagtatcgtg	gtggagatga	gttcattggc	gatatagtat	tggagtgtga	7920
agagtgtcat	ggcaaacgtt	ccgcaaggag	attctcgatg	tggagtactg	cggcgcgaat	7980
atctacgctt	gctggagatg	acgggtcaatc	aggccgttga	atctttcacc	gatcatcgaa	8040
agccagctac	acggacaaga	tcgtggagaa	gctcgaatgt	cttcggaggt	cggactcggg	8100
tatctcaaac	tgggacagag	cagcagtaca	ctctcgggtg	ggaaaaccaa	cgcgtcaagc	8160
tggctgcata	tctgggacaa	gccaacccgc	acccacgctt	ttcatcttcg	acgaaccgac	8220
tacgggctta	caatccatga	tattcgtacc	ttgctgcacg	cactgagtgc	tcttatcgac	8280
aagggcattc	ggtagtgggt	gtagagcata	atatggagat	aatcaagagt	ccgactgtat	8340
catcgactta	ggccctgagg	gtggaggtgc	cgggtggttat	tggtcgcaac	aggtagcccc	8400
gaagaggtga	tgcgatgcga	tgcctcctta	cgggaaagtg	gttgaaagag	atattgggaa	8460
acgaacaaaag	aggttgacat	ataattataa	tagtgtagta	tggtaggatc	ggtattgggt	8520
tcgattttaat	cggtgctttg	gccggttata	tagccggcaa	attgcggcga	gggaatcatt	8580
gggcttggtg	ctcaatatct	tcacggtttt	ggtgggtggt	gtccgggcgg	ataccttctg	8640
aatttgatag	gcatatataa	tggtagtatc	ttctggcgag	gcttgctacg	tctacgctgg	8700
gggccatcgt	tctactgctg	ctgctgacct	cctaagcaaa	aagcgttgag	attggtcagc	8760
tatctgtttg	gaattggggg	gtacagcgcc	ggttgcttat	attatttgag	tgtctaatta	8820
aaaatgaatg	caaaatgtta	ggatcgattt	taggttccat	tattatcggg	cattagccgg	8880
ttttattgca	agtaagttac	ggaagggccg	atcgttagct	tatgctcaac	attattatcg	8940
ggtttgga						8947

(2) INFORMATION FOR SEQ ID NO:1292

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1145 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1145

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1292

taggtctgac	cccagaagaa	aatagatatg	gggcatgccc	gcgccttgcc	agtatccccg	60
atccccagca	tcagcttgcc	ctctatgccg	agatcatcgg	cagggactga	gtgtacgtgc	120
cgtcgaaagt	ctggcgggcg	actaccggaa	gaagggtgcc	attcgcccg	caagcagaag	180
aaaaccaagc	agtcccgccg	gaagaatacc	gcctgtctac	ggggcagttg	tcccgattct	240
tccggcgaaa	gtcaagctcg	actgcgacgc	caagggcaaa	ggcaagctga	ccatcccttc	300
gcatcggaag	aagagctgga	gcgaatcatg	gccctgctcg	agctatccgc	taatccctac	360
accgtagccg	tcatgtccgg	aagtcgttgg	agattgtcgt	tttgttcttc	tgcctttgtc	420
tttctcaggc	agcggcacag	acgtcgtccc	cgacagtatc	gggcggccgg	cggcgagtgc	480
ggccgattcg	cggccacgaa	gctccccgat	acgtcccgag	tgcagacgct	ttccccgcgg	540
cctctacagc	atcctcccga	gacctccgga	cagccaaggc	gtggaaacca	atcccccccg	600
tgcactcctc	tactcggccc	tccctgcggg	gtcgggtaga	tctacaatcg	caagtactgg	660
aagctgcgga	tcgtagggg	cgcattaccg	gatgcactta	tgccatccctg	tggaacaaca	720
agacgtacac	cgagttcgca	aagcctatgc	cgacttcatg	ggcggcgatc	cgtcgaaaac	780
ggccggcaca	acttccctcc	ctacggagcc	gacccgtccg	attatgtcaa	taggagcagc	840
tcaaagctcg	tctcaagcgc	ggcacggagt	actaccgtcg	cacagggtat	tgagtatcat	900
cattaccctc	ggtgtctact	tcctgacgat	gtggatgcct	atgtggatgc	cgaattgttc	960
gatttcaaca	tctctcccga	ctctcttttc	atttcagtc	gatgggtggc	acagacgata	1020
agtcgggctt	ttccgttatg	gagttagctg	cggtttcact	ttttgacctc	tccttatgtc	1080
cggatgaaat	actgtctcct	ccctgccttc	attgcctttc	tggccttctg	ccgggtccgat	1140
cgccc						1145

(2) INFORMATION FOR SEQ ID NO:1293

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1293

```

ccccgcactc ttgagcaggt catagtcgat cgtcgctatc aaagacatac cgtaggagta      60
gctttgagat tcttcttctc tttataaatg tagttgcggt gaagagagtc tcaatgatgg      120
ctgctcgcgt agacggcccg ccgatgcatt ttctttgagg gcatcgcgga gctcttcgtc      180
cttgaccgac ttgccgccgt ctccatggca cgcaggagtg tagcttcggt atagaatttg      240
ggcgggtgtg cgttttctcc tgcacctcgg ggggtgtgtac tccactttcg ccctggagaa      300
tattggcagt tttttctcct cgtccttggt ctctccatca tcgccgttgg cggatcgggtg      360
aaagacaagt gccgccagcc cgggcttcca agatctgttt ccccggtggg ttttgaactc      420
taccttagct gcttgctcca gccgtggtct ggctgaatat gcagtcggga tagaaaacgg      480
ctataaatcg cgggccacca gatcgaatac cacgtcgctc atcctccgac ataccatgga      540
tggtgaccg gtgggaatga tgcattggtg tcaagtgate ttgctatttc gaataacctc      605
gcttt

```

(2) INFORMATION FOR SEQ ID NO:1294

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1294

```

ggattggagc gtttcctcgc agagagccgg tgccatctgg cagtcagccg catagcccct      60
tcccgggaaga aaggaggaaa ctgatgccgg gtgaaaagct ttccccatta tgcagacgct      120
cgaccggatc agggcttacg atttcaggga caacgacgag tgctggtcga atacatcgtc      180
ttcgatggtc tgaacgcgat atgcgccatg ccgacgaact ggccgctatc ctccgcggga      240
tcccgcgagg atcaatctga tccgcttcca caaaatccct gccgtatcgc tccgtcttcg      300
gataccgctc gcatggaggc tttccgcaaa cgtatggaat cgctggcttt acctgtacca      360
tccgtgcatc gcgaggggaa gatatatctg cgcattgcggc atgctctcta cgagcaaagc      420

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ggagtcttcc	gaagagaaaa	gtcgtaaagg	cggaaaaacg	actcttttgc	gacaactatt	480
attactacct	tggacttgta	ttcggaaaaga	gaaaaacaaa	aggcgaaaca	gcaaaatgaa	540
cgcaataccc	gtttattatt	cgtt				564

(2) INFORMATION FOR SEQ ID NO:1295

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3379 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3379

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1295

caataagatg	accggactcg	aatgtcgcag	ccaacaaaga	gctgaaaatc	tccactgcaa	60
caacaatcag	ctgacgcgcc	tcaatctctc	ggccaatata	agctgacgac	tctaagcttc	120
ttcaacaacg	agctgacaaa	tatcgattct	ccgacaacac	ggctttggag	tggcttttct	180
gcaacggcaa	taagctacga	agttagatgt	atctgccaac	gccaatctga	tagcactgca	240
atgcacaaca	accagctgac	tgctctggat	ctgtcaaaaa	cgccgaaact	gacacgttga	300
attgctactc	caaccggatc	aaagataccg	ccatgcgtgc	attatcgaaa	gcctgcctac	360
gatcactgaa	ggagaaggca	ggttcgttcc	ttcaacgacg	atgaaggagg	agaagaggag	420
aacgtgtgta	caaccgaaca	ctggaaatgg	ccaaggccaa	gaattggaag	gtacttacct	480
cgtggggaga	cctttccccc	gaataacggc	tttgatttcc	atcgaagggtg	agagcgaatt	540
tccgtatatg	ctcaagatgg	catcctctac	ctctccggta	tggagcaggc	ttgcccgttc	600
aggatatata	cgtgggagga	agcatgatgt	actcatcgtc	gcttccggat	cagccatgga	660
aatacagctc	ccgagagggtg	cagccttgta	gtacgtatcg	gcagccatgc	gatcaaaacc	720
gcgatgccgt	aaacgatttt	acccaacgat	caagggctgt	gccaatggat	gatattccga	780
gaggacagcc	ctttcttttt	caccatgaac	ccgtgacaat	gtgcttaggc	cgagaagaga	840
gagattcggg	aagcaatccg	cccaatagtg	aacgaaggac	agcatcgagg	gaaggacaag	900
cgatgcaccg	gcattcccaca	aatcggcatc	ggcaagcaac	ctgtattcac	tgcaatggta	960
aagataccgg	catcgacagc	gcacgaactc	ccagcggagc	attctctacc	acaaaagcct	1020
cggaaggcgc	atccccacgc	actccaatgc	cttgagataa	ggctccggat	gaggttttca	1080
cgggtgtacat	cggcacctgt	caccatgttt	gcaggactga	aattgtccca	taacttcttt	1140
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gtcacaaaacg	tccgacacca	gagccgagca	tcgtcgatca	cgtttccgga	attgtacaaa	1260
gcgaagagtt	ggctttgcgc	ccgtacatat	cggtattttc	tttttctgtc	ggcagtcgtc	1320
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aaatccagcg	gtccgcgagc	gataccgcat	tctccggcag	ctccacccaa	ctccgtgcat	1440
gtgccggcat	ggaatcgaac	agcaactccg	catatcgaaa	aagcacgaac	ggagaggggc	1500
atgccggtat	gccttctctt	gcggaagacc	tgtaatgcct	ccgttatgtt	attgtagtcc	1560
atcgactctt	tttctccatt	agcttatgac	actccagtct	tctccttggt	ggaaaagtgt	1620
ttcagacgaa	gagccagcat	ttgattgtcg	ggatggcgaa	gttcgggtcg	cgctccagta	1680
gttgctccgc	tatacttcgg	gaaagagcta	tcagcccgtg	tctcgtgcgg	gattggctat	1740
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cgcataatctt	ccttgctatt	tccaatccat	cgttcgtctc	caccatcacc	tgaatacgcc	1860
gagcgaatcc	tctctgtttt	tcggtcccggt	gacaggaatg	caatagcttt	gtctcctccg	1920
cggcctacac	gtcctctaag	ctgggtgtag	tgcgacagcg	gaaacgatcg	gcatttctca	1980
ctaccatcac	cgtagcattg	gggacattcc	tccgacttcg	ataaccgtcg	tagccaacaa	2040
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ttcaagattc	ttcagatcgg	tcgctctccga	ccccctcgatc	atcgggtacac	cacatacacc	2220
tgcgggcctg	cggcaagctg	agatcgcagg	aaacaaagac	cggagccata	tcgttgctga	2280
agtgggtggag	ggctcgtatg	ggctacggcc	gggaggaatc	tcgtcaatga	tggaaaatctc	2340
cagatcgccg	taaacgtcat	ggccaatgta	cgagggtatgg	ggtggcactc	ataatcagaa	2400

ttggggcaga	gtgtcnaggt	tcttttccca	caggcgggct	cgctgctgta	gccgaatcgg	2460
tgctgctcgt	ctatgactgc	cattcccaaa	cgacgaaagc	cactccctgt	tccaataggg	2520
catgcgtgcc	gacgacgatg	gagagcgacc	atcggccaga	cgcggaagca	agcgttcccc	2580
ctgacgtgcg	gtacagctcc	gatgagcaaa	ccgacttcta	tgccaagcgg	tcgcaacagc	2640
tcggacgggt	atgatgatgc	tgtctggcga	gaatttcggt	cggagccatc	aggcagcctg	2700
acagccattg	tccagagcca	acagcatgga	cagcaaggct	accaagtttt	accgctaccc	2760
acatcgccct	gcaccagtcg	gttcatttga	tgtcgctgag	ggatccctgc	cggatctccc	2820
gtatcacccct	tttctgcgca	ccgtcagttc	gaaaggcaga	tgttccttgt	agaatgtatt	2880
gaataaggct	ccacttgagc	aaaaacaatt	ccctgaaaac	gcgctttacg	ctccagcttg	2940
tgccgatcag	atgcagctgc	acatagaaca	gctctccgaa	cttgagtctg	tacgggcagc	3000
ttccagctgt	gccacccccc	gagggaaatg	aatctgtcga	tggcctcctg	ataggagacg	3060
aacccataag	acgaaaggat	gtaaggcgca	gtgtctccgt	cagtgtggct	gatacctgat	3120
tgaggagtac	gtacagagtt	gctggagctg	tttgcctgcc	agccccatac	tcttcatgcg	3180
ctctgggtgt	gataaatcgg	agtcagtcgg	ccggctacct	gctctgcctt	ctccccgcct	3240
ctatttcggg	atgtgctatg	ttatagccgg	aagcgaagaa	aacggcttgc	cgaaaacgat	3300
atatcgccgt	ccttcctgca	gtttgtcgcg	tagtacttga	tacccttgaa	ccaaaccagc	3360
tctatgcttc	ccgtaccgt					3379

(2) INFORMATION FOR SEQ ID NO:1296

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 403 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1296

tatttttttg	ggcgatatta	tcctgaaaga	ctttaatgag	atagacaaaa	cctcgtatcg	60
gccaaagcct	tatacagcaa	tctgaaagac	tttcgggaat	ggagaacgat	ttctcatttt	120
tgagcgaaag	acaggtagca	gccattccag	tttttgggaa	tccttttctc	cagcaagcgg	180
ccaaatggag	aatggagtca	gcagagtttt	ctggatttct	ggaagctatt	gtccccgctt	240
tacatcggtt	caaccaacgt	cttgacagacc	aaggcaacgg	ataccatggg	atgaccttcg	300
ccatacagtt	gatcgccctc	ggcaaagaga	aacatcggtg	cgaagctgct	ctcatctgca	360
gacagagggg	ggaatgcaca	tcctgataaa	tagtctttgg	cgg		403

(2) INFORMATION FOR SEQ ID NO:1297

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 526 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...526

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1297

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ccacatcagt tcgataaacc cgtacatgtc tgtacccgcg tgctatccgc tatectcggg      60
gacgcgacgc tgcgtgatca tctcaagcgt gtcggctgtg cccacaaggt gtcggggttg      120
gaaaagtcga tcatataaga tcgttygtgg caaaagcata gtccttcttc tcatcgtaat      180
aaccatactc cccataagag aagaacggtt caccgtatcg gtgaggatca tattgccgaa      240
ggcttgccaa aaccgggtacg acggtcgtaa aagatcgagt ccccgctcaa ttgctggccc      300
cgttggagga ataaacgatg gagcgatcca gcaaaatgcc tactcgggtg tcgaatcgta      360
cactcctcgc gtagaaacga tattagccgg agccgatctc atctccgtag gccccaatat      420
gtgactgatc ttggggtatc ttattataat gaaagttctt tcccggttgc atggtatagt      480
cccttatttt ccaaatggga catttattct tcggaaagaa tggcat                          526

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(2) INFORMATION FOR SEQ ID NO:1298

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3642 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...3642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1298

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acctgctcta taatacggcc tatttcctgt ggggagataa gcgatggagc cctcctccga      60
agtaaagagt gccgatcgta tcggtgactt cgggcacgaga atactcatct cggcgatcag      120
tgcctgtata tactccgaac gaagcgcttg ttctgtctgcg aatagaagtc gcaatacagag      180
cagcgcggtg cacagaagga atatgaatgt atagtcccg cacttgatct ccatgcttga      240
gggaggggata cggggccggc cacattcatt ttgttgatgg cttggagacg tactctatcc      300
cgcggtggctc cactgtttag ctccttgggc agcaggtagg agtgtcttcg atgcggtcag      360
ccaccagcct gtctctgcac cggccggagg tgcgaatctt ctgaggaaga ggcggtagta      420
tactacagct gtttctccgg cgctttgtcc caactcacag cgattttgcc atctgtccgg      480
cgtgtcagcc aggaatttct gcttttatgg gagcggcaaa acccttgcca tgtatggggg      540
gggtaccacg tcttcggcaa atcgttccgc aatgatctgc ggtatgcctt gctttcgtgg      600
cgcaactgat cttctcggaa gaggcagacg ccggcgatcc tatgtgacgg gcggaagtcga      660
tttgctctcc gatgacttga gccggcactg actgttgtct acgaccgat aggtgggtaa      720
tcccgggata atcggagggt gggtagctgc gctttccaat cttcaaggaa aggataaaat      780
aggtgtcacg gtagtagagc atcggtaacca gaaagtcacac acttccttct tgtcccagac      840
aacgggatcc tgggtgaccc cttcgtaggc tgtccagtca cccacgttt gccggcgagc      900
tttctcagac ggccgatggg agctacgctt actgtaccca cggagtcttt tccgtagcgg      960
ctcgggtgaac gtccgccatg ggtcggacag gtttcgcgcg cgcctatgctg ccggatccat      1020
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gcatgtagtc gaggtgaatg ccacgcagcg ggtattttct tacgatccac gaacagggga      1140
tgcaagtagt gctcttgctt cgggtacgcc cggattaggt accatagatt attgtgcgct      1200
acacaccatt cgggatgacg gctttgaccg attcgccttt cagcgaacgt atgtgtttat      1260
ccggtcctaa ggggtgacaa tgagccacgc atggaaagtc agacctcgt tgtggcactc      1320
tttagggcaa actccagcgg gtcgtagtcc ggcttgcttg tcccggtgaa taggtcgatt      1380
ggggttctat ctcagagggg taaatgacat ctccgcgatg agcacctgaa agaatacagt      1440
gttgaatttc tcacgtttga gcctgtccag atacggcaga gttcttctct ctgttttcgc      1500
agtccttcgg ccgtaggagg gagcgtttgt gccagtcgag tccatatatg gtggtcagcc      1560
atacccacgc atttcctctc tcaccggact gacccacggt tcgatgacag gagctgcac      1620
accgtgtccg gaagaggctt cactgtgggg ggagacgggg cgacctttta gtgccacagc      1680

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cggcaaagag	gagagcggca	atactgacga	accacctgtg	agaccgctaa	tcttcatatt	1740
tgatgttatc	gatcaggcga	accttccgca	atataccgta	atacaaccta	cggcatggtc	1800
ggtgtcttgc	cagtgtcgat	cttttgttaag	gaattcccgt	ctactatttc	gaagtactcc	1860
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(2) INFORMATION FOR SEQ ID NO:1299

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3150 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3150

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1299

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ttgcctaaaa	gggaagtgcg	gtgtactaaa	aagtttgaca	ctcaaagagt	gtctgattcg	3120
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(2) INFORMATION FOR SEQ ID NO:1300

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1300

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cccccgaaaa	aagttgtcgg	caggcaagcc	cgtagagggt	ttgcctatcc	ctcacagggt	6420
tcacccctct	tggtcagcac	at				6442

(2) INFORMATION FOR SEQ ID NO:1301

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1301

cggttgata	tgctccgaac	gtccgttgcc	tcgggagacg	gtactgacct	gcggttccaa	60
ttggagtatt	ggggcgatat	atatcggttg	atgaagcagt	tctccctcaa	gcctcggaag	120
aatggctgtt	cggttttacc	tcggatcatt	gctttggatg	aagcaaaaca	ggaaaatcct	180

attggacaat	gctcttaacg	cggcgagatg	gagtcttctc	agccgactgt	cacggatcgg	240
tacttaagga	gttgccctcc	gatcagctgt	tacctccga	agctcctcgc	ctgacggtea	300
ttggcttgga	accaacctgt	aagctcaggt	agtattaggg	caacgcatca	atatgatttg	360
tttagagcga	ggagcttcgt	tttcgtcttc	tgctgaactc	ctaattggtg	tcctgggtga	420
cattggtatt	tatggcacac	cgctatcttt	gcaaccgat	cttattcaat	cctgacctcc	480
aatat						485

(2) INFORMATION FOR SEQ ID NO:1302

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1302

ggagcctaaa	ccctcgcaga	gggagggagt	cgngatgtgt	agtttcccga	cttccgagta	60
cagggttcagg	ctctgtattg	agcaggtctt	catatcggag	gcctcgtgtc	aggtattggt	120
tgccgcgcgc	ttgcggagca	tcagggtcttg	gctcggagca	atcggcagaa	cctgtcccga	180
ccgatcgaga	actacttccg	aagtactgct	tacagaaaat	gtaaagcccg	aatgctgtcc	240
gatcttactt	tgtgggtaat	aattggatta	tatccggtcg	gaatttctgt	actttgatta	300
gaaataggca	tcccattttt	ctttcaaaaa	agaacacaaa	tacttgtatt	atgatgaagc	360
catctctttt	tttgacactt	gttgctgtgt	ttttatggtg	acaataaaaag	gattagcaaa	420
accacaaata	gacaaagagg	tgatcccata	acgaagctga	ctttacgaaa	tccccagaat	480
ggaggcagcg	ggttttatgg	acaaatatcc	catgctctgc	tga		523

(2) INFORMATION FOR SEQ ID NO:1303

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1303

cggaatatca	gcgtattcgc	ttatctcacg	acactggatg	ggatgctcgt	taggcattta	60
ttgggacgat	ggttggtact	atgtctattg	tagtggcttc	tactcaatcg	ctttagagta	120
gaagagatgc	aggatcatat	ttaccgctca	cacgaatata	gtactgcacg	cagcacgagg	180

agggcaaggc	ctataagctc	tcatcaaggc	tctatctctt	gacgggtctag	atatgtcggc	240
ttatttcagt	ataaggacta	gcttcataaa	aacgattgca	cctaacagca	ttcttaagat	300
gctgttaggc	gacttcttat	tactgctgga	gttggtgagt	gaggcttctt	gctcttgga	360
gaggagttgt	tgctggagct	ggagttcggc	ttgcgttcga	tggttagttc	gtagtctgtg	420
acacgagagc	ggagcttgcg	atggagtcgg	aggagtcttc	ggaggagaaa	aggctgtcaa	480
ggctggcgat	tttggctgtg	tatagccgag	ctccattcgt	agaatacgat	agcggagaga	540
tgactatcaa	gggcttgatt	gacgccatag	agatgtgtcg	cccaaccatg	acgcaggcaa	600
ggacagcgat	catcacaccc	catatgagcc	attctgccag	cgtttgacat	cgaaaaggta	660
gtatttgga	agctttat	cggtgggtt	tgtttagttt	ggagttctgt	caagagtttg	720
tcggtcgctt	cgtctgactt	atccgtacct	cggtaatgcc	tgacttcatt	tcgtagatgc	780
gctcccaagt	ttagcaatta	cttgacaaag	ttctctctg	aatcgacgat	gaactcctgt	840
tgctcctcta	aaatcttggc	gattcctgcg	agattttttc	ctttctcgac	ttctccttgc	900
gactctgttg	gttggtgtaa	attggagata	ccgctttgag	ttctctgttc	tggtgcttga	960
tttcttcgag	tactt					975

(2) INFORMATION FOR SEQ ID NO:1304

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1068 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1304

cgccggcgag	ggagaaatag	acgaccatgc	catcatcagc	ggcggagtgt	gatacaccag	60
ttcgtagca	tctctcagca	tgtgatgatc	caagggtggc	ccgcctctcg	aaggacatcc	120
ctccgtatgt	actggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtaggtct	180
gcgccgccga	aatttcccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaactttat	tagactttat	caagtcttcc	aaagcggcat	tgtccgcgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcatcaagga	gcttgaccgc	420
tacacgatag	agcacgagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacacca	gcagcgcggg	atcgtagtct	tcgccggcct	540
ggcaataatg	gagcggatgc	cctgtgtgca	gcccgtattc	tgggcgaaac	ggctattcgg	600
tggatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
acgcctgttg	gagacttcgg	ggatcagctg	accgaggtgg	tggacaactt	cattccgccg	720
gaactttcca	gccagccata	gtggtggacg	gtcttttcgg	cgtgggactg	aatcgtcctc	780
tacaggcgga	tttgccaagg	tcgtggagtt	cctcaaccaa	tccggagcag	agacgtatca	840
atagacatcc	cttcggggct	gttcgaagag	gataacttcg	gcataatccg	aatgccatca	900
tcagagccac	acacaccctt	acgttcgaat	acccaaacta	tccttcctct	tctccgaaaa	960
cgccgactat	gtaggcaagt	gaaagtctctg	aatatcggtc	tgagcgtcga	aggaaagcaa	1020
acgatcaagc	agagtatttc	ctcaataaccg	atttcgatat	atccggca		1068

(2) INFORMATION FOR SEQ ID NO:1305

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1108 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1305

aacaaactca	acaaaaaaga	atatccaatt	agcaagatcc	aatataatta	gaagtcggga	60
agttttcttcg	ggcaacttta	atagtcgtat	caacgatcaa	tgcaccaaga	acataataacg	120
gaaaggacaa	gaaccgctta	aattcaagag	ccaaatttat	ttgtagattc	gtcttttcatt	180
cttatattat	tatattaaac	cattgtataa	atatccattt	actcttcatt	tgcaaatggg	240
ctttccagac	aaactttagt	ctatTTTTTg	atcagattca	atgatttaag	caaagaaatt	300
ggctatcaac	agctcgcact	tttcaatagc	aagtgtata	acgaacaaat	ttaaggcaaa	360
aactgagaaa	tgagtctga	gcttcgtctt	ttgaacaggc	tgttcgatac	caatagcgat	420
aacaaataaaa	gcgagcaaac	cggcctatac	ggctgggatt	tttgctactt	ttgtagagcg	480
atagggaagt	tcgacaatgt	aaatgggtgt	tctggaaggg	cttgtctgtc	gaatagaacg	540
ctttacgaac	gtttactaac	tacttaatag	caacagatat	gatgcacttg	acttctctct	600
ttctatacgg	tcattagggtg	gatttcatgc	ggcctatcag	gtatgtacca	tcgcgtggca	660
tgtggacaaa	ggagatatta	ttccatagga	gtaagcacga	ataggcattc	gatagcttct	720
ataacgtata	aggcaccacc	cgattctttc	ataaatcaga	tgggtgcctc	tgttttatca	780
gcttcaatat	ggcatttttg	gggctgcgat	tgatatacaa	atcattttcg	attctatata	840
tattgaaaac	gatttatata	taaatggaaa	atgggtttata	taagatcggt	attcgatata	900
acgagaaagg	tatttcaatc	tgaaaaagga	gatttccatc	tcttttgat	cataaccaga	960
cttcttagag	ccggcttatt	ggaatgattc	taaactcctc	ttcgctgttg	aaaacttttt	1020
tggcacctat	tttcggtcac	aataccgatt	ttcttagttg	tttttaggcc	taagatcctc	1080
tctctttcag	cctgcagcgg	tcgaggct				1108

(2) INFORMATION FOR SEQ ID NO:1306

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1306

gcgtctgggtc	atgatccatt	cacgtccgtc	caattcaacg	atgttatccc	ggttaaattg	60
gacacatcaa	tatacgccag	gccactgaaa	caggagaaat	gaaaatatcg	cgaaccaaatt	120
ccaatctggg	tatggatatt	tcttttcaat	gattcgcgtg	atttcttcat	cggttagaaa	180
ccctctgctg	gaatctgcgt	atgaaaccgc	ttgttcacaa	aggggtcatg	agacagaaat	240
ccatgctgcg	cccataaaga	gtaatggttt	tgaaaagctt	caagattttg	gttgcggtatt	300
cggacaacaa	tgagctacag	tcagcagata	tatctcaaag	ttagaatgac	caacggggta	360
agctctgaga	atttgagatc	cgttctgttg	tattcgcctt	gaggaatcgg	gtaaaatgcc	420
gttgctgggtt	tc					432

(2) INFORMATION FOR SEQ ID NO:1307

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 376 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1307

cgagccggac	gtatcacacg	gcatgattcc	catagtccag	catccctgcg	gaatatgatg	60
tgtgactacg	cttcgggctc	caatgacggc	tccccctccc	gatgtttaca	cccggcaggc	120
tgtaggtttg	aaccagcctc	gtattatacg	tcagttcgac	gtaagaaaac	gccaatgaat	180
aattcctttc	ctgatcgagg	ctaattgccct	aaaattctca	gacaaatagg	ggtaccctgc	240
ttctgttgga	tcgaaccaac	attgaaattc	ggattgcttt	tttgaccgaa	tgttcagtc	300
gtacagaaag	atgggctata	ccatagggca	catggaggta	ctcgtagggg	atgacgagct	360
atccccgtaca	gctctt					376

(2) INFORMATION FOR SEQ ID NO:1308

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1308

gcgccagctg	acaccgcagg	agagacaaga	gctttggagg	ctgattcggg	tgtaaaacgc	60
accttgccct	atgccaaaat	gatgcagct	actctgatga	aacgtacgaa	tatatggaaa	120
cgatgcccgga	tgagaaaagc	agacaaagca	tctcaagcgc	atggaaaagg	agatgaagca	180
gcaatacatg	ccggagtga	acgactgacc	ctccggcagg	ggaagctcct	gatcaagctg	240
atcgacgaca	gtgtgcacag	tcgagctatc	agctactcaa	agcttttctc	ggcgatggaa	300
agcgggatgg	tggaatctct	tcgcccgcct	ctatggtgcg	agctgaagac	tcggtacgaa	360
cctgacaaga	atccggaaga	cgccctgacg	gacgaatagt	tttgtttagt	gaagagaaaa	420
gaatttaaca	aagttctttg	cactttcggc	aaaaaaggct	atattggcct	ttgtttttca	480
gagacgactt	gattat					496

(2) INFORMATION FOR SEQ ID NO:1309

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 492 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...492
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1309

tattccttat	agctggcagt	gtcctacaaa	agtgtctaag	ttcctaaagc	aatactcatc	60
gtacgcacat	gattcaaata	tctgttttcg	ttactcttaa	gtctctttac	cattacgtaa	120
tctacttgat	tctctttgac	cacattgatc	cgctgcttag	atacattttt	gtcgcaaagt	180
tggctttttg	tacagaagtg	aggtttgat	agcttgctgc	gcgaagatga	tcaagtaatc	240
tccaacgtct	aatgtgattt	tcgtaaaatg	ttctgtacga	aaatcgttca	tcaaggaatc	300
ggtttgttgt	gttctgtgtg	agtgtaaagta	aaccgcgatt	tttttgtagc	ctcttcgatt	360
tttcattgcc	gtcaaaaata	ccgcacccaa	ccctgtctgc	cgtaaaatttt	caaaagcata	420
ccgaagcact	ttcgtttaca	gttcaggaat	taagccctgt	ccccaaaatg	gttcgccaat	480
ccagaatcct	tt					492

(2) INFORMATION FOR SEQ ID NO:1310

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 987 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...987
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1310

cggtctctta	ttatgaatca	ttttcagttt	ataaaatcga	ttccaataat	atatagagaa	60
cgaaaacgat	tcgcatatag	accgttggt	ttcgatggcg	tttcgggaga	tgataaaaaca	120
gaggcaccca	ccgagttcgt	gatcgaacgg	gtgggtgcct	tatatccttg	gttgtagata	180
ggaggcttat	cagtcttatt	gatcacaagg	atttttgttt	gttgtagggc	gaatggatta	240
gatcacttca	gctcttggt	gagacggggg	cactgacccc	atttgtcaat	catgagagaa	300
cgtagcggat	gtccacgctg	attgtgcgct	gcagatcggg	ttcaactcga	tgtcaccact	360
catagcttcc	cagttgccat	cgaaagcaag	acgatcagac	ggccgttctt	atcgaatacg	420
gggctaccgg	agttaccgcc	ctgatgtcgt	tgttcgatag	gaaagcgata	tggagctgac	480
cgttctcggc	tagcgacct	agtttttggt	gcggaagagg	tcgaggatat	tctcctgtag	540
gcaaactcat	cgctcttaag	gaatcctgct	tctccaatac	gcccttgctg	tcgtatgata	600
gttgtagacc	gcaccgtcct	gcgggttcata	tccttggtgg	agcctgtagct	catacgcatg	660
gtgaagttgg	catcgctcgg	cagagccgct	cggggtacat	ctcacgcaaa	ccggcaaaga	720
aaagacgctt	gccctctcaa	tggcataggc	attggccatc	gcacgcgcct	gaatagcgcg	780

agcacagcta ttacgctctt ggaaagctct actgccggat cttttctcga tagcttggca	840
aacttttcct tgtccatgga cttgagcatg gcatggaaact tgcgctataa ggaaccacac	900
tcttgctgaa tacgaagtct gcatacttct tgggtcgcct ttgaattctt ggcgattaca	960
ttcttgaata tatcggggag ttgtcgg	987

(2) INFORMATION FOR SEQ ID NO:1311

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1311

gatgccgagg agcatgtgtc tgatgccacc caagctgtct attttggatc gtagtcctga	60
caggcttgca gtagtttttc ttccgaagca tatacatcgg tgccataatg ttttcggca	120
ggatgtcgat atggtcgaga aagtcctgcg caatttggcc agacagccta agttctcgct	180
gaccggtgga tagtatcgaa tacgggtgaag gcaatcacgt tgcggaagct gagtccttcc	240
tcgctgtgtt ttgtatcagt ttgtcgtaga cgatgaccgg cgaattgcct ccggcagagc	300
cagggtgtag tatttgtgtt gtgcttgcca ctcccgtata tcctggctat tttcgttggc	360
aatgacttct gctgcttcgt cgttgggtgcc ggatatattg gtcggtatat tctcgaagcc	420
gacgtagcag ggtctcttcg tagtattctg cggacgggta gtatcgtccg gtatttcgga	480
tagagaaatc tggacttang ttcaatctca tcttctgtc gtttt	525

(2) INFORMATION FOR SEQ ID NO:1312

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1312

cggctacaag cgggagatga gcggtgatga catcggtgtc cgattctcgt caactgcgat	60
cagggggaaa agatctatgt acgatcggcc gtttcattgt cagcgaagcc aatgcgctct	120
ataatctgga agcggagcaa gaagagggtt caaaagtgtc ggagggaatc cggccaaggc	180
tttctccgct atacgcctcg cgctatagag cgttgggagg aagccctcgg tacggtggaa	240
gtggaggagg cacaccggat gaaaagacga tattctatac cgcactctat caccgctgat	300

acatccgaat	atcctacaag	atgccaatgg	agaatatcct	atgtgggcag	tggcaaaacg	360
ggtaatacgg	ctcacgaccg	ctacacogtg	tttctctttg	ggacacgtac	cgcaatgtac	420
accgctgct	ctgcctcctc	ttccggagaa	gcagttggat	atggtagcga	cactgatcga	480
catgtaccga	agagcgggtg	gctgccgaga	tgggagctgt	acggacagga	gacctgaca	540
tggaggggcga	ccctcgctt	atcgatcatca	atgacacttg	gcaaagggcc	ttcgtgcttt	600
cgatacggca	acggccctatg	aagccatgaa	aaaaaatctt	cttcggcagg	agcgacccat	660
ccgatccgtc	ctgacaacga	cgactactca	ccctcggtt	cgtaccgctt	cgcgaacagt	720
acgacaattc	cgtatgcatg	cgctggaata	ctatctggcc	gactggaatc	tgtcccgtt	780
tgccacgcac	ttgggcataa	agaagacgca	gctctattcg	gaaacgctcg	ttggctacag	840
acactattat	ataaggaagt	atggtatgct	gtgtcccatt	gcgcgggatg	gatcattcct	900
cactcctttc	gatcccaaac	agggtgaaaa	ctcgaagcct	aatcccgtt	tccacaagg	960
cagtgccttat	aactatgctt	ttcgttcccc	acgatataca	agggcttgcc	cggctgatgg	1020
gaggagcaag	gttttttcgg	aaaggttgca	gaaaagtctt	cgatgaagga	tattatgacc	1080
gaccaacgag	ccggacatcg	cctatcctta	cctcttctcc	tatttcccaa	ggaagcatgg	1140
cgaacgcaga	aattgacccg	ggagttgata	gacaaaattt	ttgcaatgct	cctaacggct	1200
tgcccggtaa	tgacgatgcc	ggtacatgag	tgcttggtt	gtctattcca	tgctgggatt	1260
ctaccttgac	tgctgggcag	ccccacctat	acactgacct	cgccggtatt	cccccgagtt	1320
aggttcggct	caatccgcag	tattatcctc	agggggagtt	gatcattacg	acaatacaga	1380
gaatcaaccg	acagattcca	tttacatcca	tacggtttct	ctggcaataa	aacacttccg	1440
catggaacaa	ggcatatcag	ccatgcgcag	tggtgcgctg	cgtcacctc	cgttacgaac	1500
taagcaatcg	tcctcgataa	gccgaagtgt	cttaggatta	caagcatata	cctgagtttt	1560
tgatacagag	gttgcaactg	catcctgaga	ctgttgcatg	ggagtttcat	cgagctcttt	1620
gctgcagagc	tgattcttag	tgtcttcggg	aaaggtcaaa	ccttcgtata	tggacacagc	1680
aagcaaacag	aaatttcatc	aagtttccat	tagagagtac	tcctttcctc	gtcaaataca	1740
tgcttgtgcc	gataggcgag	aaataggaat	gattgtcggc	tgattcttgc	ttcctgcacg	1800
atgcaggacg	cgatgtcagc	tgattcttgc	ttcctgcacg	atgcaggacg	cgattgtcaa	1860
ctattcttgc	tcctgcacg	atgcaggacg	cgattgtcaa	ctgattcttg	ctcctgcacg	1920
atgcaggacg	cgattgtcaa	ctgatttttg	cttctctgcac	atgcaggacg	cgatt	1975

(2) INFORMATION FOR SEQ ID NO:1313

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1066 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1066

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1313

cgctgctctt	gataagatcg	tgacacagttc	tgttttctcc	tcccgattct	ctcttttgcc	60
gactctccgg	cttcttttgg	taggttgtct	ttcccgaag	cgggtatcga	gtgtcggggt	120
ttgtggagga	ttcttacgtg	caagtcgggt	caaacacct	gttttcaaaa	ctccccaa	180
ctgcctctgg	tctgctccgg	ttatagatat	gtgtcttcgg	attattatta	tgatggaccg	240
atgattttgt	gggatattga	gttccggaag	ccaaatcggt	cgatgctttc	ccgaggagga	300
gaaagctgct	cgggcagatg	cggtaaatga	agcagaacct	gaacgaagga	atccgggatt	360
caagaatcct	ccgtgcgtac	caatttcgct	gaactgcatt	ctttgagccg	gcattgctga	420
ccgatgaacg	gggcgaagtt	tttggctttt	cactctgccc	gagacactga	cgcgctggca	480
cctgctcctc	ttgcacatac	gaaggatatg	cggttgggga	tgaaagacga	aagcgtggag	540
tgcggaaaga	ctttatgctt	acacccaatt	tgccacgatt	cctgagaagg	gtgacaaggg	600
tacggcttcg	gcttcgattc	ggaacgggag	cgagacgtgc	agcagggtct	cgtccgtatg	660
gaactgttcg	accctgctac	cgacaactat	tgggcggcga	gaggcttccg	ttctcggtgg	720
aagccgggtg	tacgggtacg	tgctcgttcc	gctcgatcct	gtctccggat	atgatgctct	780
gggttacgtt	tgtagccga	aagccatgac	ttcagcgatg	gagagcaaca	ctcatcgtgc	840
aactgccggc	tacggagcga	gtgggtggaga	ccataaccgtt	gatctctacg	gcggacagtc	900


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ccaaacggtg gatctggata gtctatttcc catcgcaacg gcagaccggc tatgggtaca 960
atggcacttc aggtgggtgag aatccgcttt ggggtggccgt acaggccttt gcccgatgat 1020
actgatgtaa cgaggaagat gccggtttcgt ggcttcgctc tttatg 1066

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(2) INFORMATION FOR SEQ ID NO:1314

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1101 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1314

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tcgtatcctg cttaccctcg gtatccccgt atacgactct gacagcagac caaatggctc 60
aatgatcaca gccctgtcgt ccgacaggca ctgacgggct cataggcagc gatctgtacg 120
agaacggcat actcaggcga gacaggcggc tacggctatc ttctcctccg gcgatctcct 180
cgaacaggta aacgggtcat acatccggaa gtcaaaaaag acttctgccg atggcggttcg 240
gagtggaatc ggatctctgc gccatcgaga gtgccattct tttcagctcg ggatcaactc 300
cctgtgcgat acggtaattc gggtcgatgc ccccgaaaag atagacaaga gcggnccgatg 360
gctcgcgacg gctcatcggc agaaaccatg agcagcgatg gctcagccaa gaaagagagc 420
agtcattggc caaggccgga gagaccatac ggtgctcaac gccccacccc atctacttgt 480
ccctcaagtc tcagaattat agagacagta cgaacaaaga gacccaatcc gcccgatcgc 540
tttaggggaa taagacagggt gcttccctgc tctcctaccc ctgcacagaa cgaaatactt 600
acttttgcag acagtcaaaa actgaaatac aatatcataa cagaaaaata tgttgcaacc 660
catcctttcc atatccggca aatccgattg tttcggctcg tatcgcgcgg aaagaatacg 720
ctcatagtcg aagcctcgac acgaaacgta gaacccccac ataccatcg ggaccgagta 780
gttccccttg gcggatatatt ccatttacac catcgaagat gatgtccctc tgcggagggtt 840
atggaaacga tataccggaa gaacgaaggc aaacagctcg atctcctgct ctcacgaagg 900
acaacgactc actacgtgct ttcttcgggg agtactgccc gaatacgacg tcgatagagt 960
atatccgagc gatatacgca gattatctct tggtaacaatc ttctgggtgga caacggattt 1020
accactttct ctcgataag aaaccggcgg aagaagagac gacggaaaaa gaatagcaac 1080
ttcggcgggg gatcgctctag a 1101

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(2) INFORMATION FOR SEQ ID NO:1315

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 690 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1315

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggcaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	acccctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaaat	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaataa	taagaagccc	360
ataaaacaaa	agtgagatta	tactattttt	tgactattgg	tcgttcgaga	agtctccacc	420
agatatttct	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcat	ttgatagtaa	aaatagccct	540
cttatcctgc	atactgctaa	tagtccaagc	cataaccgga	tccaccaatc	acgatgttcg	600
tcatagcgat	gaagtctagc	tagcgacacg	aagagctacc	aggacatgat	gtcgattgga	660
taagtcgatc	gggataatac	tgggcaacca				690

(2) INFORMATION FOR SEQ ID NO:1316

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1316

aacaatatga	cgggggtgga	atacagcttt	ggcaaatgct	gcaatcctat	tacgggggatt	60
ccgtattcgg	attcgtgagc	aatagcggta	tcaagataac	cgcacggact	gcccgaatgc	120
gccggatatg	ttcagccgat	acggttacgc	atcatcgaag	ctcgctggag	cggtaagggg	180
tcgaccggat	acgaggtaca	cttcatgtca	taggacagga	caatctggcc	atcgtgacga	240
acatacttcg	gtcatcaata	aagaaccagg	cgtatcgctc	cgagcctatt	cgataattcg	300
aaggacaatc	tcttcgaagg	ggtgttcacg	gtcgaagtac	ccgtacctcg	acactatcca	360
tcctccttcg	caagatccgt	gctacgcgat	ggtcaagtcg	gccgaacgac	attgacagcc	420
ccttgcaagt	ctttagtagt	gagtacatgg	tctggatgat	gtgtatcgta	ttcttgagca	480
gaacggcttg	aagtcttttag	tagtggagta	catggtttca	gacagaatag	cgtatatattc	540
tatcaatatc	gtgtaatggt	ataagcggat	aaggatatggc	gagaatcctg	ccaccggcag	600
gaaaaaagct	gacggctatg	cgtttatcac	aggcctctca	aggaggtata	aaataaaaag	660
caatggctca	gagttagtta	atagggatta	cgacc			695

(2) INFORMATION FOR SEQ ID NO:1317

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 767 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...767

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1317

gaccatagta	tcctctcata	ggagaccata	gtatcctctc	ataggagaca	tagtatcctc	60
tcatgtgaga	ccatagtatc	ctctcatatg	agaccatata	tcctctcata	ggggaccata	120
gtatcctctt	gtatgagacc	atagtatctc	tcgtggaagt	tcattctttg	tatctcaggg	180
aaagaccggt	gagcagtgtg	tcgctgtcaa	gtaaacagag	agcagtgcc	gaatacgttg	240
ccaatgataa	gcatatcgac	ttgggtcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tggcatgacg	tccctgaatg	aaacctcttc	tcgtcggatg	atttcttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggtctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacggt	agatgcgccc	tctgcttttc	agtcgcccct	atcttcaggg	gattatttag	540
cttgtctatt	gagcctttgc	aacaggagcc	atcatgacaa	caaccgac	tgctgcttca	600
agaggtctgc	cgcaaacttt	tgcaattcag	caggagtaga	ccgttcagta	cggattcgta	660
gtctgtgatg	aagtcatttc	cttcgagaaa	gacgccttca	gggcttcgag	ccagaaacga	720
ttctcacgca	gacttctttg	tgctgcttat	tcagggggac	cgagggg		767

(2) INFORMATION FOR SEQ ID NO:1318

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3782 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3782

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1318

gtgctgttcg	gtcttggcca	tgaagtccctc	catatctacg	ttgcctcgcc	gtcgcaagct	60
accgtcaccg	tatcgtatcc	gcactggatg	gcactggcgg	attggtaccg	tgggcagaag	120
ccggcaggat	aaccagatgg	cggtgtcctg	tccgatgctg	ttcagatagc	cgcaaatagt	180
gagcaatccg	gtgtatcgcc	tgctgcaccg	gagttagggt	ggagcgaaaag	tggcatcgaa	240
accgggataa	cggccaagta	acgttcgagg	ctttcgagca	tctcgttgta	gcctccgtct	300
ggtctttcgg	agcatacggg	tgaatggcat	tgaactgcgg	catgagaggt	tgaacagctc	360
ggatgcggca	ttcagcttca	tcgtacaaga	accagcgga	tcattggagt	tgccagtga	420
atgtccttgc	gttcgaggcg	ttgatgtagc	gcatacagctc	tgtctcggtg	tggtagtgtg	480
tgaatacgtc	tagtccagga	agttcgaggt	acgggcaaaag	gcaccgtcga	aataccgttg	540
tcgatggcaa	tgtcctccga	gattgtctcc	tctttgcccc	aaacggatag	aagatataga	600
gcagaacacc	gaggtcggac	ggcagtgtat	tctcgtcaaa	ctgatcagga	tgctgccatc	660
ggcagggtag	aagaagttta	cgctgctttc	tcggccagtt	cgcgtaactt	gtctgctgtg	720
acaccggccg	gcagcccaca	cgaagcgtgt	cgaaaaagtc	cttattttgc	agcttataac	780
cgagccggag	agcttctcgc	tgataaatcc	tgataaagca	tgtaccctgc	cggtatgtgg	840
cgcaagccat	cggcaccgtg	atacacggca	tagaagctgc	tctcgtagcc	aacaaagctt	900
gtgcggtaca	gatattcgat	gtggctttct	ccgtttgatg	tgctgttcgc	gcgtttgcaa	960
tgccagacga	taagccggac	tccgtaagca	tctttggaca	taccgataat	acggccgggg	1020
atgttgcgtt	gtagtccata	ctcgtagcca	aatatcctgc	tgacggggccg	ccgtaataat	1080
gggaataaccg	aaacgctgtg	ccgatccgaa	tacgatatac	gcccccttc	tcccggagga	1140
gtcaggatgg	tcataactcaa	gaggtcggct	actacgctac	tttggcattg	gcagcatgag	1200

ccgcttcgat	gaatgattta	taatcttgac	agatccttct	gcacgggga	actgtacgat	1260
ggcagcaaat	acttggtgt	gaagctgaat	gtctttagt	catccaccac	gatctgcata	1320
cccaggtat	gatacgggtg	cggatcactt	cgatcgtaga	gcggaatacc	ttttgtccac	1380
gaagagaacg	ttggcaccag	ccttgatttg	tgtgcgcgaa	cggatcga	gaacatacgt	1440
gcagcttcgg	caccggcagt	ggcttcgtcg	ggagcgagca	gttcgtcaag	ggcagccccg	1500
tcagttcgg	gatcacggtt	ggaaattgaa	gagagcctcc	agacgcccct	gtgatacttc	1560
cgcctgatag	gcgtatagga	ggtgtaccac	gcaggattct	ccaatacgtt	gcgctgggtg	1620
gagccggcgt	gaccgtatca	taccagcctt	gtccgatgta	ggaggtaaga	tcttgttctt	1680
ggatcccagt	tccatgaaat	gttcgagcag	ttcgccctcg	tcattggcttc	gggcaaatcg	1740
agaggctcgg	gcagcagaat	gtcgcgggga	tcgtttcgcg	gatcagctga	tccattgact	1800
ctacgcctat	ggtcgagaga	tgacggagag	gtcgcgctcg	gcaataccaa	tatggcgggt	1860
ttgaatttgt	tagtattcat	tattctaatc	gagaaaagg	ttattagttc	gtcgtaagct	1920
atcgtagaag	taggcccgtg	tccggggtag	actaccgtat	gtcgggaagg	gggagaagtt	1980
ccgtacgaat	gctctttttc	aggagttcga	gctgccgccc	cataagtcgg	tccggcccat	2040
atcgccagca	aagagcgctc	gccggtaaat	acagcttggt	cctgcgggca	atagaatgcc	2100
agatgacggg	cgagtgcctc	gggacgaaaa	gcaccttgat	gatactctct	cccaatgaag	2160
aacgtcgccc	ggagcaatgt	attgtatggg	cggttcgtcc	atcgccgaa	catgccgaag	2220
gcagccagtt	gcttggacgg	agaaggcatt	tcttcacttc	agcccgatgc	gtgagcacag	2280
gcagaccgaa	ggttttagct	gcaagccgtt	gccccaggca	tggtcgaagt	gcaaatgtgt	2340
attgagcagg	agtttactgt	cagttgctgt	tccatgaacga	agcggagtag	ctgctgctct	2400
tgctcccatc	catacagccg	cagtcgataa	gtgcagcttc	gcccgtggag	cgtaaaggat	2460
atatgtattt	tctgccaccg	aattgaaggt	gaactcttta	cttcagtcgt	tgtcatagag	2520
gtaagtagac	cacttttttt	gttttgaata	ctcttcttcg	aaggtcggcc	atagctcctc	2580
tgtcattgcc	ttgttccgaa	tggcagtatc	tcgtgctgaa	gctcgccacc	cttgagacag	2640
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ggccagttcg	ctcagcttca	ttactgcacg	gctgactatg	aagtgaattt	ctcacctatg	2760
ctttctgccc	gacagtgcac	agtgcgcaca	ttgcaagccc	caatgcttca	gctacggccg	2820
aagccacttt	cacctttttg	ccatgctgtc	caccagcagg	aaagagactt	gagggaaacaa	2880
aatcgccagt	gaataccggg	gaaacctcca	cccgtaccca	aatccaatac	acttgtgccg	2940
gtttgaagtt	cagcatgcga	gctatcccca	aagaatgcaa	cacatggtga	gatacaaat	3000
gtctatatcc	tttcgggaaa	tgacattgat	gagggcatcc	aatgcgtgta	cagccctccc	3060
atttgctcga	attgttcgcg	ttgccgtcgg	acaagtgggg	gaagtatttc	tcgatgatct	3120
cggtagctgc	cggttggaca	gcggcttttc	gggtatctcc	tgcatattgg	tcatatcggt	3180
cgaagaaaag	gaggggggcta	cggcaagtaa	cgcttttagt	gggaatcatc	ccttgcaaag	3240
gagccaatac	gtcatatccg	agacggacat	agacagcacc	tctgcataag	cagctatctg	3300
atactcattg	aaacagtatg	tgagaccttt	gtatcgatca	taaaattgcc	attgggctgt	3360
atctcttctg	cgttgaagaa	actattgcac	ccaattcggc	aggtgtgggt	ttgccgaaat	3420
cgtgcaccaa	tgtcctatga	tgagtgcgga	cagcctttcc	gcatagtcga	tcttgaataa	3480
tctcgtctct	cgagcacctt	gccgggtggg	cgaaggatgt	tggaacacgg	actgtattct	3540
ccgtatgtgc	accgccttcg	taagtatatg	tattgatcgc	gtggagatca	atcccgtatc	3600
gcaataagcg	atggtatttt	cctgctgtag	atatagtcca	aaaggtcaga	aggaagccct	3660
tgcagattgg	cttcgcattg	ttagagcgat	agtcttctcc	cagcatctgt	gcatagcctt	3720
ccatgcattc	tccggcgaag	aggaatccat	caggctgtcg	ccgaagagca	aacgttgaaa	3780
at						3782

(2) INFORMATION FOR SEQ ID NO:1319

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1319

gccaaagccg	ccgatattct	tttgcgtaga	ggctattttg	tttacaacct	ctgggaggat	60
ataaaggcta	tccgtacaag	taagtgatac	ctggagagtt	tccggacagg	tttctctact	120
tgctctctac	ccatagctct	tgttttctct	cctttacccc	gaatggatcg	tcctaagcct	180
tcatatattg	ttcgaaagca	gccattctct	gcttgtttgt	cggcaggcct	ttgtttgcg	240
agagcatgtg	gactacgtcg	atccgctgat	cgggacgcta	agttcttttg	agctagtgcg	300
ggcaatacct	atccgggtgat	cggtttaccg	tggggaatga	atactggaca	ccgatgaccg	360
gtgtaccccg	tgacggctgg	caatatacct	accggcacac	aagattcgcg	gattcaaaca	420
gaccaccaa	cccagtcctt	gatcaacgac	tacggccaat	tctcccttct	tccccttacg	480
gcaccgcaga	gccatcatcg	aacgactcca	tagctctgac	taaattggtgc	aagcaactct	540
ttcggacgaa	cagacctcgt	ggttctcgca	caaagcggag	acggcgaccc	atactattat	600
agtgtctatt	tggccgatta	cgacacacgc	gtggagaggc	tccgaccgag	cgtgcagcta	660
tctttcgcac	acgttattcc	ggcaatccga	aagtggctcc	ggtcgatggc	ttcgtcttga	720
tgcctttacc	ggtggtcgga	gattagcatc	gtggatcctc	acaccgtagt	gggcataatc	780
cgcagaatag	cggagggtgtg	ccggctaact	tgcctgttta	tttcatcctg	cagccgatac	840
tcctatggcc	gatgtcctgc	ttgagacaga	taccggcaag	tcgacgaagg	cacaagggca	900
tgggcagcct	gtcgcttcga	ttcgcaagaa	gtaccgtccg	ggtggcatct	tcttttatca	960
gtgt						964

(2) INFORMATION FOR SEQ ID NO:1320

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3597 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1320

aggtgtcgga	agaagttgtc	cttgaccacg	cgttttattc	ttgacgaagg	catcaccttg	60
gtctgcgcac	cgccgaagca	gtgtaccatg	ccatgaatcg	acgactcatt	tcgtccagta	120
tggccttgac	cacagggcg	taggtactgt	gggcgagagc	acgagcttgc	ctgcgtccag	180
ccccaatccg	gctatgcac	ggtcagcttc	atgctgccgc	tatagaccaa	atcgtccggc	240
accgaggatc	gaaactctcc	ggatacttct	ctgccagata	gtgggcaaaa	acgtgtggcg	300
agcagaggtc	agtcggttgc	tccccatacc	gocgttgtag	tgccctcgta	ggaagcttgt	360
ccgaatgagg	ctaaccgcac	gataacgtcg	ccgccttgat	acgggcattg	tctatcacat	420
ccgatcgctt	catccggcaa	gcaccgtact	gtccacgatg	atagtcctga	cgagatcgcc	480
cacatcagcc	tttaccctcc	cgtggcatag	gcattcacac	ccatgcgacg	cagatcggca	540
ggagttcttc	cgtgccgttg	ataatagccg	ataccacttc	gcccggtaga	gccgtttgtt	600
ccggccgatg	gtcgaggaca	caagtatatt	atccacgcac	cgacgcacag	cagatcgtct	660
atattcatga	tcagcgcac	ctgtgcattc	ctttccatac	ggagaggtct	cccgtctcgc	720
gccagtaaag	gtatgaagcg	agcttttggg	gcccggcccc	tcggcatgca	tgatattgca	780
atagcaggat	cgcccccgag	aatatccgga	ataatcttgc	agaatgcctg	aggaaaatac	840
ccttgctccac	attcttgatg	gcggcatgca	catcctcttt	cgggccgaca	ctccgcgacg	900
gttatagcgt	tcgttagaca	tatagctgct	tgtcttttgt	ttcttgtttt	agcggaagcg	960
cagtatatcg	ccctcttggg	tatatattcg	ccatccttgt	cgttgagctt	gtagaggttc	1020
ttcatccggt	gccatagcgt	tgggagatac	tgtgcacgca	atcgcccaac	cgcactactg	1080
ctgtgtgtgt	ttggagatgg	agcatgcgtg	ctttttctcc	agatagacac	atcgcccttt	1140
tcgatccgga	aatccacggg	agcatcgttg	tatttgccag	tttgagggtc	ctcatgtcga	1200
actcttcggc	caaagaatcg	aagggttcgc	ttgcttggct	atgatgtaga	gcagtcctga	1260
gctgaagtaa	gcttggtgctt	gagtcgcctc	tgtcttgcct	tggtcgtttg	atgggatttt	1320
ttgtggaccc	ggggtgaagc	ttgtggaacc	atgaggggta	cttctcgcga	tcaaagcata	1380
tagctcatac	agctccacca	tcttgatcag	cagattggca	tgccccgatt	ggtggcatag	1440
ccacagcggt	gcaaccccg	agcccgagcc	gatagtcttc	tctgtcgagt	ttgaacaggg	1500

gacgatagcg	tggttgagaga	gaaatcggga	atgatcttca	tacgattcgc	gagcggccga	1560
atagctgcga	agcattcggt	cggcgcacg	tcgggtacgat	aggtgcgctt	gcccgtcacg	1620
atgtgtggca	tttgatcccc	aagtgtattgt	tgtgtacgct	ggccagggtac	tggtccgggc	1680
tctgtctcc	accaaagcct	gtgctatggg	gatgctgccg	gtatattgta	gcggctcatc	1740
tgtcggatag	cttcgtcggc	gtacgtttca	cataagcctc	gtatgtacgg	tttcgactct	1800
gagcctgtcc	gattgctgcc	cgaagaaaaa	gagaaccgaa	acggaaagta	tctgccaat	1860
gttgctctca	tctgtttgaa	atagttgcaa	caaaacaacg	ttagctacaa	agtacaaata	1920
aattgcagtc	cgtcaggagg	attcggagcg	atctcttttg	aaattttcag	tctcttccct	1980
ctataatttg	aatccctgag	atatgaattg	tgcttgtttt	gataattgaa	tgtagcaatc	2040
atgaagctat	acgtacatag	gagttcaagt	gcgattgccc	tgagtgatct	acacctctt	2100
tatttgcctt	taatacggac	aggggatttt	ccaattcctc	aaccaataga	tcgaccttgt	2160
acaggggttg	tgatttagcat	aatctttatc	cttggtgttc	aagcgagttt	ttcggcatat	2220
cgctttgcta	aaattccatc	tccatgggtc	ttcataatgt	gtaaaaggag	ggatcattct	2280
tattgtatcg	gaaagaatta	tcataagtcg	cttttgatc	aagttttcaa	gtttggaaat	2340
gtaagcatca	cgctgatagg	tacatccaga	tattggaaat	ggagaaggaa	ccacaattca	2400
aagcttcggt	tgtccaagcg	catccgaaac	catagctctt	tgcaaggctg	tagcttgatt	2460
aaaatcatca	aaatcgtctt	tatcaaagac	aaccacaatc	gatcaaagcc	taattcacgc	2520
tctttttcga	gattatcccg	aatctcttgg	ctcgttcgac	taatgcacaa	gtagaacaac	2580
cttgccccct	aatctctcct	cacgaacttc	cgagtagtgg	ttgtcaatca	aagccttaaa	2640
atagttgggt	ccgtcttttg	tccttcacaa	acgatcagga	atcgaactat	tatgtccggg	2700
tattctcttt	gcgttttctt	gcggcttttg	cttctcgctt	ttcagtttta	gtcgttctat	2760
ttctcttttt	ggtggttgtc	ccatggtctt	acattgaaaa	aatgaacggg	atagctccat	2820
aacgtccggt	aatatagtcg	tttgaaaact	ccgatcttta	cgaactttta	ctccttctgc	2880
atctcgaac	ttatcaatga	ataaagatcg	gaggattctg	tctgtctttt	ttccgtgaac	2940
agatttgatc	acggcgtaaa	taatcgccct	tcagcagatt	tgtgtcgtgg	tattaaagat	3000
caactgtgct	ccattgggat	ttgtctccgg	agacataaca	acttcagaat	acttctggtc	3060
aaaagggggt	ggagtttggt	atctaatact	ctatcagcaa	aacagaacct	tctttcaatg	3120
tgtcgaataa	agggccgaaa	gctctatgac	tttcttggtt	ccttccgatt	ccatttcac	3180
cttgggaaaa	ttttttcctc	gacctgatta	ccgtcttggg	catataccca	atgaaagttt	3240
tgatttctaa	tacgcttcgg	ccatcgaaat	ctttcaatat	gaatctttca	attcatccgg	3300
tacttccttg	agtacatcgt	tcgaaagagg	ttctctgtga	cgatcaagtc	tttgaatcct	3360
aactgcgtgc	gacggaagaa	gctttggcct	cattacatcc	ttccggattt	tctttgagca	3420
ttttcagggt	aagccttcat	aaccctgttt	ttctacaacc	gaaataagat	tgcatgtcta	3480
aaccagtcca	aaatagaaga	tgatttcttt	ccatttagct	gcgcacacag	gacacaaaaa	3540
gtctattccc	gggcgtagca	tctgctttgc	tatcacctcc	ggaaatcgct	tcttgga	3597

(2) INFORMATION FOR SEQ ID NO:1321

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 756 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1321

gtgtcggaaac	agctaagaga	cgggatagcg	ttcttcgccc	gaaagtaccg	cacatgaaat	60
acctggccta	tttccaagcc	tataccaata	cctatggaag	caagccgaga	tcatccgtaa	120
atacgaagag	gctctgaact	actacgagta	gtaggcatta	ttatagggtac	cagaccggac	180
tgcagtcggg	attctctttg	tcctacttaa	aggatttgct	ggaaagagta	ttcgttctcg	240
tggaaatggt	gtagagagta	cactggatgc	cactcttcgg	cgagtgaatc	gtggcacctc	300
tggtcggata	gtatggcagc	tatcgagcga	acggctaaga	ccgattgccc	ataggtgtgc	360
atctgatacct	cggtctgccg	ggggaaagca	gaaagatata	ctcaggcacg	cggacaagat	420
atcggcattg	cccgctcacta	cctgaaattg	catcaactgc	aaattatccg	cggtacggct	480

atggccaaaag	atatgcagag	agtcacctcg	acttttcattt	ttactccgag	gaggaatatt	540
cgatctgtgt	cttgattttca	tcgaacgcct	gcgtcctgat	attgtgctga	gcgtttcgta	600
tcgcagtctc	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgatac	cgctgctgca	tttcaaaacg	cgatatcaga	cagggacgga	ctggaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgt			756

(2) INFORMATION FOR SEQ ID NO:1322

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1349 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1322

ggctgataga	gcgacaatta	ttcggggcacg	tacagataga	ggaacgaggg	agaatagaaa	60
acctcgatca	tgatgggaca	ttcgtccatt	gccagcacca	aatctacgct	taaatcacag	120
gccaaaagat	tgcaaaagat	atggagagct	gataaagaaa	tatacgggtg	ccgttgtaaa	180
tagaaagagg	tttattaaga	tccacaatag	gattgtgtag	ttttgcatcc	gtcataaggt	240
ctccttacgt	catgaacaga	ttaagggaag	cattaaaaga	aaggggaatt	actcaacgga	300
gctttcaact	cgcttgggca	agagctttta	tatggtcaat	ctcatgttgc	caacaagcat	360
cagccctcaa	ttcctaccct	cttccaaata	gcgagatttt	ggatatggac	gtaagagatc	420
tcttggatc	taacaagcaa	caaacaaata	atgaaactga	tagatataac	aaaaggatcg	480
gaacacgacc	cagctctttt	tcagacgaaa	agattggccac	attagagtct	cgtatcactt	540
aaaggaaggg	aaaaaaaggg	ctatttccta	tctttcctgt	ctcgttcgaa	gcaggagatt	600
aagcttaccc	ccgaggaggt	agtgcgtcag	ttatatcaat	ggtgcttacg	gaagactttg	660
gttatccact	ttctcgcatc	aaattgagta	tgaggtaacc	ttcggtcggg	aaaagaagcg	720
agccgacatc	gtcatttcga	caagcaacaa	acagatagcc	cttatatcat	cattgagggtc	780
aagagccgaa	actcaaggat	ggtaaagagc	aactcaaaaag	ctattgcaat	gccctggagc	840
acccatcggt	gtatggagta	atggcaagag	catatcctat	tacaccgtaa	agaccctaac	900
tattttgaag	acatcgagca	tatcccgaga	gtgatcaaaa	actttcagat	attctttcgg	960
agcgttggac	gatagcagac	ttatagaaaa	agataagctc	attagcgaac	gcaagtcgct	1020
caaagacctt	tcctcgaaat	ggaagacgaa	gtgttggcag	gagctggggg	ggatgtgttg	1080
aagagggtatt	caaacttatc	ttcaccaaac	tttttgatga	gatggaggcg	gacgcaacaa	1140
tgagcgcaac	ctcgagtttc	gcaactatgg	cgatacgaga	ccgaactcaa	agagcgcac	1200
caaaatcttt	ttgataaagc	tcgtgcaaat	gggaagggtg	attcagcccc	gatgccaaga	1260
tacagctgac	gcccttcacc	tttctgtctg	cgtagcatcg	ttgcaggacg	ttaagctctt	1320
caatccaatc	ttgatgtggt	gggcgaagc				1349

(2) INFORMATION FOR SEQ ID NO:1323

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1323

```

ccggcggtata tgcctacccc ggtactccct ctacggaaat caccgagcaa tccaaaactc      60
tcggatggct aaggaaagaa atgtccatcg ggaatggggg caaacgaaaa aaccgctatg      120
gaatcaagct ctcggcatgt cctacgcggc aagcgcgctc tcgtatgtat gaagcatgtg      180
gggatgaacg tagcagagac tgctttatga atgctgccat caccggtgcg aatggcggtg      240
tggtgtcggt gctgccgacg acccctctat gcaactcgtct tcaaaatgaa caagcttttc      300
gcgtgtatgg ccagttngcc atgattcctg tgatggagcc atcaaccaac aggaagctta      360
tgacatgacg cgccttgctt tcgatctatc cgacgtttgg gtacaccggt catgatgcgt      420
attacgactc gtctcgctca cctcgtgccc gtgtcgttca gaccgagccg atcggagaga      480
ncgaattgca ctgccg                                     496

```

(2) INFORMATION FOR SEQ ID NO:1324

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1005 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1005

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1324

```

gcaaggagca gtttttcttt cattgttata tccccgcct gtagcatata tacagagtca      60
gcacttgctc ggtaccgaag cggccgatta gcctgcagat ttcagcacct tggtcaccag      120
agcattttct tgatagtagg aggcataata gatatgtccg ccagggtggg cgggagctta      180
tccacaaacc ctttgacgca ggttgccgcc ttttctgaag atggtttctt ttcattgtcat      240
tgatgcgtct attatgctta atacgctggt tattagggtt tctcacctat tcgatatctt      300
tgtgtctgtg gcaggaggga acgaatcttc caaccattgg cttaacaaca acaaagaaac      360
agcttattat gaatagtgtg caatttcgcg aaaacttctg agtctgcaag acaatatgcg      420
caattttgcc ctgactctga cgccaatcgg gatgatgcag aggatttgct ccaagataca      480
actctccgtg gcttcataac gaggacaagt tcggttgataa tgtcaacttc aaaggctggt      540
gctcactgtc atgcgaaata tcttcataca caactatcat aagttggctg ctcaaaaacg      600
gttatcgatc ccaacagcga tccgtacaat gtacctccct gaatgaggga ggagaggata      660
cgcccgatgg cactatgacc atcaaaagat aacggcggcc attgcatcgc tgaatgagac      720
tctcaagcag ccatttccat gtacgtgagc ggatataaat acaatgaaat atccgagact      780
cttgaatccc tctcggcagc gtgaagagcc gtatatctt tgccagacag gaatccagca      840
gcaactcaag gacatgagat aacagcctgc tcagcacaca cacctccatc gacaacagta      900
tcaaaaaagg gtattcggtt aagcctctga agaccgataa cgaataccct tttttgttgc      960
aacagctcgc taaggcgaga gttcataact gaaaaagaga cataa                      1005

```

(2) INFORMATION FOR SEQ ID NO:1325

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 967 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1325

gcctccgatg	tggatgaatgc	cgtgatcatg	gctccactc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaaggggtt	tcttacttca	tgccggtacg	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cggggggatg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcac	tgaatctcgg	ttcggccgac	ctctcccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atgggtttct	tcgagacatc	300
atgcagatat	acaagcagct	gccgagttcg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgcaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420
catcagccgt	ccgcccgcga	gatcatgcag	agcgcataca	tttgtcacga	agcgcagaag	480
ctgccgatac	ccgcaagctc	ttcgagcagt	cggtcccgaa	gcgtaccatt	attttcgccc	540
ggccaagctc	aaagtgcgtg	agctgacttc	cactctccgc	aagatgggtt	caatgtggcc	600
gatatgcact	ccgatctgga	gcagtcccag	cgcgaaacgt	gatgcgcgac	ttcaaaaacg	660
gctatgtgga	tgtacttgtg	gccactacat	cgtagcgcga	gggatcgaca	tcgacaacat	720
acgcgtagtc	atcaatacga	cattccccac	gatcccagg	actatgtaca	ccgtatcggg	780
cgtatgcccg	aggaacaaac	ggggaggttc	tggctatcac	tttcgtctcc	gagaagagca	840
gagcgacttc	cacaagatcg	agacgtttct	gggcaaatcg	gttataaatt	gcctgtcgat	900
ctggagtttg	gtgaagtccc	ggcttacgaa	cggcgaaacg	tcgccctcgc	cgtttggggc	960
gaagcgg						967

(2) INFORMATION FOR SEQ ID NO:1326

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 579 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1326

ggctgtgaag	tttatgaata	gattcgggga	agaattgata	agaggtgtcg	ctggccgaag	60
tcatatacac	gctacttgct	gcccattgaa	gggttttctt	ggagaaagtc	gggaaaaagg	120
ggattcccat	cgaactccgt	cctgcacgt	tcggtatcag	ggtgcatctg	cttcgattcc	180
gaatatagcc	ctccttgata	cacatagtgc	cctaaagctt	tttaacgtca	gttcgacgtc	240
tatatataac	gtgagttcga	tataagcgtt	atggtgccga	ctctcataag	tattgtcgat	300
caatcctttg	ttgggttaac	tataaccgat	cagaaaatga	aaggaaaaaa	tttgacgtct	360
catcggatgt	cgaagtctcc	cgaagctgaa	attctcaacc	gagaaatgaa	atacgttgac	420
aaacagcata	ttgcatgttt	tcttggtatc	aatccgcatt	gttttatagc	cgttcgggaa	480

atactccgaa ggggggtcgag ctacgcccta cagcgactcg ggctacgccg tanagcgta
gagctgcgct ctacggctct ttcgagctac gctgaaggc

540
579

(2) INFORMATION FOR SEQ ID NO:1327

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1327

tctaaaagga	tataccgatg	aagatagtaa	tatgcggaca	gctatgcagt	ctacccggcg	60
atttgactg	gagcggatc	gaagaaatg	gcgaatgctg	ttctacgaat	atacccgctc	120
ggaggattt	actctgcgtg	ctgctcgagct	gaaatagtgc	ttaccaacaa	gactcctgtg	180
actgcggccg	acatggaaa	atgccccacc	tacgttacat	cggactgatg	attacaggcc	240
ttaatttata	gatatggatg	ctgctcgtca	gcgtgggtatc	accataacga	acatccccac	300
tatagcacag	aatcagtagc	ccaaatggca	atctcgcac	tacgcacata	accatgccga	360
tcggagaact	ttccccggc	gtgaaagatg	gtgctggcag	agcaattacg	aacaaatctc	420
tcgcaatact	tatcagatag	actgagcggg	ctgacgatgg	ctatcgtggg	acttggggca	480
ataggtacac	tgtagcggaa	atggcacgtg	gattcggcat	gaagattttg	gcacatacac	540
caaattctcca	atcgagttgc	cttcttatat	agaaaagtcc	cgatagccgg	agaagctttt	600
ctcttcgggc	tgatgtgctg	agtctgcatt	ggcgcgtaca	gtgcaaacc	aaagatggtt	660
cggctgatta	gctggccttg					680

(2) INFORMATION FOR SEQ ID NO:1328

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1328

tccagcttac	ggatttggtt	acccgatagt	tcaagcggtt	ctaaggacgg	agacgttcca	60
gaccctccag	cttacggatt	tggttatcca	aaagataagc	tccgctaacg	aggtgagacg	120
ttccagaccc	tctagcttac	tgatttggtt	tcggagagag	aaagttttgt	tagcgaggtg	180
agacatcca	ggcccttagt	ttactgatct	ggttacttct	tagacgaagc	tttgtaacg	240

aagtggacgt	tccagaccct	ctagcttact	gatttggtta	cccgacagat	aaagtccggt	300
aaggacgtga	gacgttccag	accctctagt	ttactgattt	ggtatccaaa	agataaagct	360
ccgctaacga	ggtgagacgt	tccagaccct	ctgcttactg	atttggttat	cggagagaga	420
aagttttgtt	agcgaggtga	gctatccagg	ccctctagtt	tacggatttg	gttacttctt	480
agacgaagtt	tgttaacgaa	gtaagacgtt	ctagaccctc	tagcttactg	atttggttaa	540
cgatagatca	agctttttta	gagcaggaaa	atcaataagc	caagtcattt	ttctatctga	600
cattctcgca	agcaaagctc	aacga				625

(2) INFORMATION FOR SEQ ID NO:1329

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1329

aagagataaa	gcaaattgac	attgcttggt	accagcaaag	catcatacct	tcttcttcca	60
ttgctatacg	tacacgtctt	tggcgtaact	ggagatctcc	ttcaaggctg	caggtgctaa	120
tttgatcata	atattttgag	attattttgat	taacgaaaca	aaagtactga	atagcatatt	180
cgcaagtcac	gaataacacg	atattatcagt	acagaaagct	gtcttatccg	attatagaaa	240
gtcttccgat	ttcccgattt	gcttcttcta	tttgcgaaaa	tcccgtgcaa	tagtccatac	300
agtgtgtcta	tgcattttgt	ctcttttactc	ctgatgcact	ttgaatctac	tcgaatgagc	360
ctcaaaagcc	tgctccggcg	ataactctcc	aatccggcaa	aatttattcg	accgacgaag	420
ctgtgtagca	ccactcctcg	atctgccatg	atccgttgcc	aatcgctgta	tggaactatct	480
ccccttcaga	acaataccta	atcggtttcg	gcaatccggt	ggctatactc	gtctgtgtac	540
catggcatca	atacttaaca	atcgtgccac	ttaactctaa	ctatccagct	actc	594

(2) INFORMATION FOR SEQ ID NO:1330

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 726 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1330

gcgatgcttt	cgaaagattg	cctcagccgg	agccgattcg	cagacggctg	tacgcgtcgg	60
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ctcctctcct	gttcatgagg	agcgaatggt	tcatcagcga	taggagattt	gtgcgtgggc	120
gacacggtgg	cacatgcgcg	cttcggatag	gaatcatcga	atccctcgaa	ggagaaggcg	180
ataatgccaa	ggctgagttt	cgtttcagca	ggtaggacgc	aaacgtctgt	tacttcggtt	240
tgccagctat	ccaaagtggg	aaaagattcg	atctgaacta	cagtgttctg	tactaaaaac	300
gtttaggaca	ctattgggtg	tacaccgggt	tgtcttttga	ggtttattgc	ttcgtggggg	360
tatatctccc	aaaagcaatc	ctttcttctt	attgttcaaa	accatgagac	tgactcagcc	420
atccatgagg	tgtcttaagt	taaagctaag	tgtcgaacgc	ccttgagggt	agttctgtgt	480
acaaagatcg	taaccgatat	cgaatcagtc	aataacccaa	gatgaatcat	ccgagtataa	540
acacgagggc	gatgttcata	ataaccgggt	ccccaaangt	ccagctccga	ttgtagagtg	600
gagattctat	tcctaagagt	ccattaatag	catagggagg	acatcggtca	tgatgcgtcg	660
ctcctaattg	attgcaatcg	aggatagctc	cggtattggt	cttcatagat	ggactgagat	720
agataa						726

(2) INFORMATION FOR SEQ ID NO:1331

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1331

aggaagatat	ccgagcaatt	tcgatgccaa	ctcaaagggg	agcagcgagt	gactaccaga	60
tcatcatcac	gacagaagtg	cttgcgagg	gtatcaacta	caccgtgcc	acagcatact	120
caactacgat	actccatgga	atgctaccgc	ctgatgcaac	gcacggggcg	agtcaaccgc	180
atcggtcccc	aagctcctgc	gtctatgtct	ataacttcat	gccgagtgc	gagggagatg	240
ccgagtcaat	ctcgtcaaga	aagcatatac	caagctacag	tctttccaca	cactttcggt	300
gaggatagtc	aaatcttcag	tgaagaagaa	gaggttgtac	acccgagctg	aaaaccaga	360
tcgagggcgc	ggagtctgcc	ctagagcaat	actctacgag	ctcaaacct	acaaggcgca	420
gcacccagaa	cgatacgact	aatcgctcgg	cagagcgaa	ggctagagtt	ggctgtatct	480
gagacagagg	gcaagctctc	ttcgtcgtcc	gcagcccaa	gtgccctgcg	atgttcgttg	540
ctatgatgcc	ctagaggata	agtgtcttat	gctctctgcc	ccacagatta	cgaggctttc	600
cgct						604